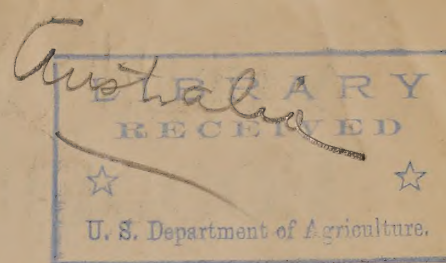
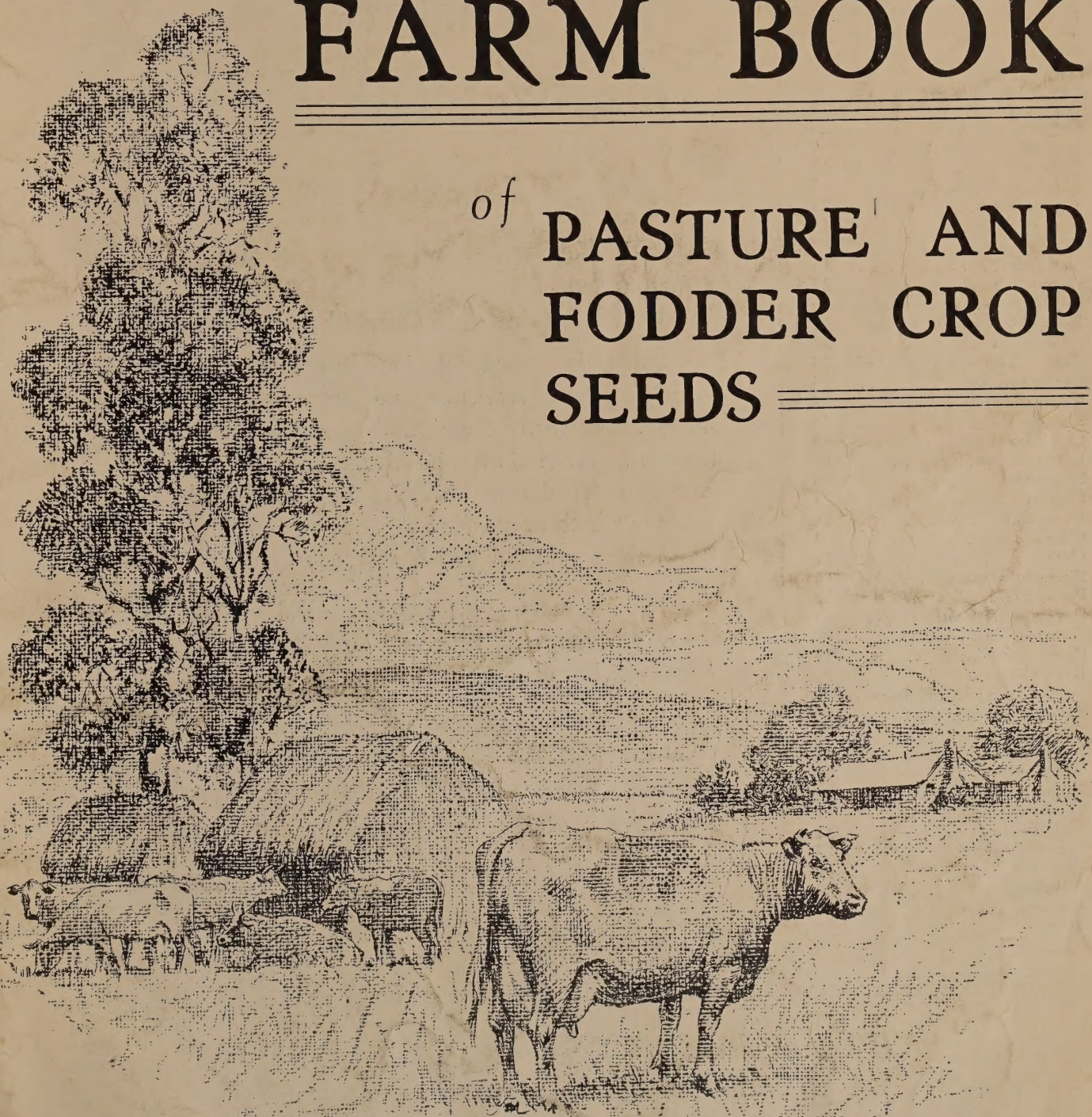


63.5
SEASON, 1937



YATES' AUTUMN FARM BOOK

of PASTURE AND
FODDER CROP
SEEDS



YATES' BOOK OF FODDER & GRAZING CROPS.

AUTUMN, 1937.

CONTENTS.

	Page
Barley	21
Beans, Horse or Tick .. .	23
Cabbage, Cattle .. .	24
Calendar	1
Clovers	15-18
Elephant Grass	15
Grain, Seed	20-22
Grasses, Pasture .. .	9-15
Grasses for Swampy Areas	15
Horse Beans	23
Implements: Inside back cover	
Kale, Marrow, or Chou Moellier	24
Kale, Thousand-headed .. .	24
Kikuyu Grass	14
Kurrajong	24
Legumes	22-23
Lespedezas	18
Lotus	18
Lucerne	19-20
Lupins	23
Mangolds	24
Mustard	24
Oats	20-21
Pasture Grasses	9-15
Peas, Field	22
Permanent Pasture Mix- tures	208
Rape, Sowing	23
Rye Corn	22
Seed Sower: Inside back cover	
Sheep's Burnet	12
Sugar Beet	24
Swedes	24
Tagosaste	24
Tares	23
Terms of Business	1
Tick Beans	23
Tree Lucerne	18
Trefoils	17-18
Trifolium	18
Turnips, Field	24
Wheats	21

Pasture Improvement Proved

1936 was generally a year of uncertain rain ; some districts experienced prolonged drought, others had too much rain alternating with very dry spells.

Under these conditions Improved Pastures, sown with the correct varieties and properly cared for, showed how vastly the natural grasses of the country can be bettered even in adverse seasons. Everywhere the paddocks carrying Improved Pastures stood out both in carrying capacity and in the quality of the produce, whether milk, meat, or wool.

1937 is starting with good general rains ; take every advantage of this, and sow down areas of Improved Pastures.

Improved Pastures mean more stock per acre. Guard against the seasonable shortages of feed by supplementary green crops for the winter pinch and for drought reserve storage.

ARTHUR YATES & CO. LTD.

ARTHUR YATES & CO. LTD.

SUPPLIERS OF RE-CLEANED AND TESTED FARM SEEDS

184-186 SUSSEX STREET, SYDNEY, N.S.W.

LETTERS—G.P.O. BOX 2707C

PHONE—MA 6771.

TELEGRAMS—"SEEDSMAN," SYDNEY

TERMS OF BUSINESS

CONDITIONS OF SALE AND NON-WARRANTY.

WE believe that all Seeds Bulbs and Roots sold by us are of the description and kind specified by us at the time of sale but owing to the practical impossibility in many cases of being certain of this we give no undertaking that such Seeds Bulbs or Roots will correspond with the description under which they are sold and we make all sales subject to this condition. We further give no warranty expressed or implied as to their growth description quality or productiveness and will not be in any way responsible for the crop. If the purchaser does not accept the goods sold to him on these terms they are at once to be returned to us and any money paid to us will be refunded.

ARTHUR YATES & CO. LTD.

PRICES.—We do not print prices in this Descriptive List, as values fluctuate, and some of our supplies have not been received into store at time of going to press. All charges are set out in our Price List of Farm Seeds current at time of booking order. The Price List now current is sent you herewith, and later issues will be posted promptly on receipt of enquiry.

DELIVERY.—We deliver Seeds on rail or wharf, Sydney, after which Seeds are on customer's account and at his risk. Orders sent by goods train are consigned carriage forward (except to unattended platforms), unless we are otherwise instructed at time of order. Delivery within the Suburban area of Sydney will be made of Farm Seeds, Seed Potatoes, Manures, and Garden Sundries, at the following rates:—Up to 14 lbs., 6d.; up to 28 lbs., 9d.; sack lots, 1/-; over sack lots, 6d. for every additional package.

FORWARDING INSTRUCTIONS.—Please give full and careful directions with each order and we will do our utmost to comply with them. When no instructions are received we send according to our judgment.

TERMS OF PAYMENT.—Our terms are nett cash with order (including allowance for freight if goods are required by coastal steamer or passenger train, or by goods train to unattended platforms).

SOWING CALENDAR.

Approximate times for sowing are denoted by:

† For moderately warm climates where Oranges thrive.

* For cool climates, say where English Fruits thrive.

The most suitable times for sowing are very largely influenced by local conditions and seasons, and these and any local experience available should always be taken into consideration.

FARM SEEDS.	Jan.	Feb.	Mch.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	FARM SEEDS.	Jan.	Feb.	Mch.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Artichoke, Jerusalem ..						†	†	†					Oats, for Grain and Hay ..	..	†	†	†	†	†	*	*	*			
Barley, Cape and Skinless ..		*	†	†	†	†	*						Paspalum ..	..	†	†	†				†	†	†	†	†
Barley, English ..		*	†	†	†	†							Peanuts ..	..											
Beet, Sugar ..									†	†	†		Peas, Field, for Fodder ..	..		†	†	†	†	†	*	*			
Beet, Silver (Field) ..			†	†	†			†	†	†	†		Peas, Field, for Soiling ..	..		†	†	†	†	†	*	*			
Buckwheat ..								†	†	†			Peas, for Garden ..	..	†	†	†	†	†	†	†	*	*	*	
Canary ..			*	†	†								Peas, for Market ..	..	†	†	†	†	†	†	†	*	*	*	†
Carrot (Field) ..			†	†				†	†	†			Pumpkins ..	..							†	†	†		
Cabbage (Cattle) ..		*	*	*					†	†	†	*	Potatoes ..	..	†	†	†			†	†	†	*	*	
Chicory ..			†	†	†				†	†	†		Rape ..	..			†	†	†	†					
Clover (Sorts) ..			*	†	†	†	*	*	*				Rye Corn ..	..	†	†	†	†	†	†					
Couch ..		†						†	†	†	†	†	Rhodes Grass ..	..	†	†	†					†	†	†	
Cow Peas ..											†	†	Saltbush ..	..			†	†			†				
Grasses, Pasture ..			†	†	†	†	*	*	*				Shallots ..	..		†	†	†	†						
Kale, Thousand Headed ..		†	†	†								*	Sheeps Burnet ..	..			†	†	†		†	†			
Kale, Chou Moellier ..		†	†	†								*	Sorghums ..	..	†	†					†	†	†	†	†
Linseed (Flax) ..													Soy Beans ..	..	†							†	†	†	†
Lucerne ..			†	†	†	†	†	†	†				Sudan Grass ..	..							†	†	†	†	†
Lupins ..			†	†	†	†	†	†					Sunflower ..	..							†	†	†		
Maize, for Grain ..									†	†	†		Swede ..	..		†	†	†	*					*	
Maize, for Fodder ..		†	†						†	†	†	†	Tagosaste ..	..			†	†	†		†	†	†		
Mangel ..			†	†					†	†	†		Tares ..	..		†	†	†	†	*	*	*			
Mangel, Half Sugar ..			†	†					†	†	†		Tobacco ..	..							†	†			
Millet ..		†	†						†	†	†	†	Turnip (Field) ..	..		†	†	†	†						
Millet, Broom ..									†	†	†	†	Velvet Beans ..	..							†	†	†	†	
Mustard ..			†	†	†			†	†	†			Wallaby Grass (Danthonia) ..	..		†	†	†	†		†	†			
Melon, Cattle ..										†			Wheat, for Fodder ..	..		*	†	†	†	†	†	†			
Oats, for Fodder ..		*	†	†	†	†	†	*					Wheat, for Grain ..	..				†	†	†	†				

YATES' FARM SEEDS ARE CLEANED, GRADED AND TESTED.



Dept. of Agric. Photo.

Sheep on the Tablelands Pastured on a Mixture of Perennial Rye Grass and Perennial Red Clover.

PERMANENT PASTURE MIXTURES.

Choice of Species and Rates of Seeding.

By J. E. Harrison, B.Agr.Sc., Agrostological Research Officer.

THE following article is reprinted from the Journal of the Department of Agriculture, Victoria, with their permission and also with the kind permission of the Author, Mr. J. E. Harrison, B.Agr.Sc., Agrostological Research Officer of the Victorian Department of Agriculture.

Mr. Harrison is one of Australia's leading Grass and Pasture experts and his knowledge of the Pasture species discussed in the article is very wide and complete. As the article was specially written for Victorian conditions some Grasses and Clovers which are of importance particularly in New South Wales and Queensland are not mentioned, and the problems of those areas where the rainfall is largely a summer one with rather dry springs are hardly touched upon. However, the varieties of Grasses and Clovers particularly discussed in this article are so important in practically all Pasture Improvement programmes it will be of the greatest interest to everybody. When our friends and customers are considering their own individual problems, our own expert staff will be only too willing to help and advise regarding varieties and quantities in the mixtures to be used. We would appreciate a letter giving situation, soil, amount of preparation, and the main purpose of the pasture, so as to enable us to realise the position fully when replying.

When a piece of land is to be laid down permanently to pasture, care is required in selecting species and strains, and in compounding a seeds mixture containing them in correct proportions. A wise choice of the most suitable strains will give persistency of the species, and if their seeds are mixed in correct proportions for sowing down, a dense well-balanced sward of grasses and clovers will develop early in the life of the pasture.

Species are selected to suit the rainfall and soils of a district, and to fulfil the special purposes of a pasture in relation to the needs of stock and the requirements of a farm. The total average annual rainfall is taken into account, its distribution from month to month, and its reliability from year to year. In the western districts of Victoria, the rain falls mainly during the winter, the summer being relatively dry, while in eastern districts about the same amount of rain falls from month to month throughout the year. Thus an average rainfall of 30 inches a year is somewhat different in effect in the Western District from what it is in Gippsland, and may necessitate the use of different species and strains.

The reliability of the rainfall decreases gradually from the coast towards the interior of Australia, and as temperature and therefore evaporation increase in the same direction, the rainfall is not only less dependable, but also less effective. The seasonal habits of a plant, such as time of germination, period of growth, and time of coming into ear, are very marked, and unless certain minimum requirements of soil moisture are maintained at these times, checks occur in the normal development of the plant.

In inland districts, therefore, where the rainfall varies very much from year to year, the seasonal requirements of plants are sometimes fulfilled, and sometimes not, and consequently a species may do well one season and poorly the next. This makes the establishment of permanent pasture more difficult and uncertain in these districts and may necessitate the use of different species and strains from those which flourish in coastal areas.

Soils are often a deciding factor in the choice of species for permanent pasture. The effects of different kinds of soils appear to be the outcome of their

Yates' Current Price List contains Pasture Grasses, Clovers, Fodder Crops, etc.—send for one.

reactions to the rains that fall more than to any other characteristic. The differences in the extent to which rains may be absorbed and retained, or lost by run-off or evaporation, create widely varying conditions of soil moisture in the various kinds of soils, which, therefore, become inhabited by different plant species. In any one area of similar rainfall, the soil types are often outlined by the different kinds of natural vegetation, field crops and pasture types, which follow the pattern of soil variation very closely.

It is not uncommon when a field has been sown down to a mixture of perennial rye grass and cocksfoot, to find that rye grass becomes dominant in one part and cocksfoot in another part of the field. The same selective action by two kinds of plants may take place when subterranean clover and white clover, one an annual, and the other a perennial, are sown together in the same field, and are found subsequently to occupy different portions. These and similar occurrences are familiar ones, and they illustrate that an understanding of the conditions under which each pasture species will grow well will enable a farmer to place each species in its proper place and to economise in the purchase of seeds.

Fertility of the soil plays an important part in the growth of a species and sometimes in its persistence. Fertility is a fluctuating factor, which rises and falls with manurial treatment, the cultivation and methods of disposal of crops, and the kind of stock used in grazing. Even in early Roman times it was known that a leguminous crop raised the fertility of the soil and increased the yield of the following cereal crop; and to-day in Victoria we are witnessing the improvement of much pasture land by cultivation of the legume, subterranean clover, and the subsequent satisfactory growth of perennial rye grass on soils which have hitherto barely supported it.

An increase of fertility usually is accompanied by an increase of organic matter in the soil, and though this does not change the soil type—it still remains a sand, loam or clay, as the case may be—it generally results in an improvement in its water reactions, such as permeability or retentiveness, which may enable it to support a more productive species of pasture plant than formerly.

The natural restrictions as to what may and may not be sown on different soil types are often advantageous and may result in a greater variety of grazing and a better distribution of pasture growth throughout the year. If farm land does not lend itself naturally to the growth of different pastures, it is still usually desirable to grow more than one kind if possible, in order to supply the needs of farm stock for green feed more adequately and over a longer period.

The pasture species vary in their times of growth in both autumn and spring, and also in their response to summer rainfall; and if a change can be secured from the one type of pasture which is likely to prevail on very uniform land, it will be found to have its advantages in certain years, and at certain seasons. In the past it has been usual to grow fodder crops to supply green feed during exceptional periods, but because of the relative simplicity of high pasture production, as well as the labour and expense of growing fodder crops, they have largely fallen into disuse. The limitations of certain pasture types in having marked periods of inactivity are realised, and unless this can be overcome or modified by the use of a variety of pasture types, it seems that the growing of fodder crops will come into vogue again, at least to some extent.

SIMPLE OR COMPLEX MIXTURES.

During the past decade there has been a change of view by grassland workers in various countries as to the number of species which should be included in pasture mixtures. It was usual to include several species, and in old books on the subject, recommendations may be found which include as many as twelve or fourteen species. To-day it is not uncommon to see only two, a grass and a clover, recommended for soils of a limited capacity, though for highly fertile soils in districts of good rainfall more species usually are included in mixtures.

The circumstances which have led to the use of simpler mixtures have arisen mainly from recent knowledge of the importance of strain in pasture plants, of the competitive effect of one species upon another, and of the restricted adaptation of each species to certain soil and climatic conditions. It is possible, now, where it was very uncertain not many years ago, to select a strain of grass or clover which can be depended upon to persist. The former obligation to make provision for the possible or probable failure of either, by including other species, therefore does not exist to-day.

It has become apparent, however, that these persistent strains may be highly competitive, dwarfing the development of other species, and even eliminating them from the pasture. It is necessary to name the persistent strains of perennial rye grass as the chief offenders, and to emphasise at once that the proportions in which these strains are present very often determine the fate of other grasses, especially on soils that are primarily suitable to perennial rye grass.

It is recognised that if two or more grass species are present in a pasture, each species might be encouraged or retarded by appropriate grazing or resting at specific periods, but the extent of this type of control would appear to be limited by the rigidity of certain farm practices, by deficiencies in soil moisture, and by stock possibly selecting and grazing a different species from the one it is intended to check. The restricted adaptation of the various pasture species to certain soils and to certain rainfall districts has been indicated in Victoria during recent grassland investigations and has led to a simplification of mixtures. In a few cases also the unproductive nature of certain species like crested dogstail and sweet-scented vernal has led to their exclusion, in some cases, from seed merchants' catalogues.



Grazing Lucerne on Northern Tablelands, N.S.W.

Shall we send Yates' Current Price List? — free on application.



A Fine Pasture of Lucerne and Phalaris.

SEED PROPORTIONS.

Another alteration of view taking place is in respect of the relative amounts of grass and clover seeds desirable in a mixture. It has been common practice in the past to sow large amounts of grass seed and small amounts of clover seed. Only a few years ago it was usual in the Western District to sow down 40 lb. perennial rye grass seed with 2 or 3 lb. clover seed per acre. Perhaps the mixture was compounded with an eye to its cost, as the local rye grass seed was relatively cheap, and clover seeds, especially subterranean clover, were a high price. But there has been a hardening of prices for rye grass seed of reliable strain, while the price of subterranean clover seed has eased considerably, so that any influence which prices might have would probably operate in the opposite direction at the present time.

A better reason for altering the ratio of grass seed to clover seed is the fact that a new pasture first becomes highly productive through the development of clovers under regular dressings of superphosphate. It is naturally desirable to reach this highly productive stage as quickly as possible, and for this reason a tendency has arisen to reduce the quantity of grass seeds sown and increase the quantity of clover seeds. There is a reason for both alterations, as a reduction in the amount of grass seed lowers the competitive effect of the grass upon the clover, and an increase in the amount of clover seed accelerates the development of the clover stage.

Another reason for sowing less grass seed is that the number of grass plants which ultimately persists in a pasture represents, as a rule, a small proportion only of the number of seeds which may be sown. For example, the number of plants of perennial rye grass which ultimately persists in a field may be no greater than the number of seeds in 1 or 2 lb.

QUANTITY OF GRASS SEED.

There are several reasons, however, which make it necessary to sow a greater number of grass seeds than the number of grass plants which may ultimately persist in a pasture.

The capacity of grass seeds to germinate and establish seedlings under field conditions varies very much from sample to sample, and from species to species. In the case of rye grass, about 80 per cent. of seeds usually germinate, and of these, about 60 per cent. may be expected to give rise to seedlings. This means that even when a clean sample of seed is sown, only about half of it is effective, and if impurities are present the result is lower still. This is one good reason for sowing more seed than is apparently necessary, but a more important one, at least in the case of

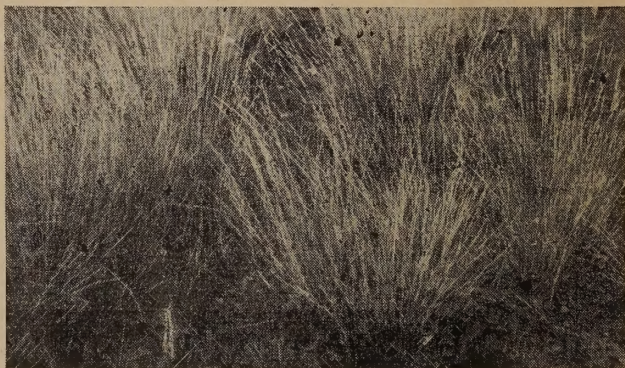
perennial rye grass, is the control and suppression of weeds which are obtained if a relatively heavy seeding in is made.

A further consideration affecting the amount of perennial rye grass seed which should be sown, both when it is the only grass sown and when it is included with other grasses, is the rapid growth and increased grazing which this species gives in the year of sowing down. Other perennial grasses and practically all the clovers make little growth in the first year, and very little grazing is obtained from them unless perennial rye grass is sown with them.

It is suggested, however, that perennial rye grass could be replaced, in part, by the short-lived rye grasses, such as Italian rye grass, New Zealand South Island rye grass, or Wimmera rye grass, which cost less to buy, are as effective in suppressing weeds, and give the same amount of grazing, or even more, in the year of establishment. The advantages of perennial rye grass, when heavily seeded in the first year, are offset by the continuance of its severe competitive effect upon clovers and other grasses in the second, and even in the third, year of establishment. The use of a short-lived rye grass, with a light seeding of perennial rye grass, would retain the advantages of the first year while permitting the development of clovers in the second year, and so the more rapid development of a highly productive pasture might be expected.

The use of Italian rye grass at seeding time has been forgotten or overlooked during the past few years, but it would seem that it could again be accorded a place with advantage in the details of pasture establishment in certain districts. There was some fear that if Italian rye grass or other short-lived forms were sown with perennial rye grass, they might lead to a corruption of the perennial type by cross fertilisation, but no evidence has been discovered to support this view. It appears safe to sow them together unless it is intended to harvest the field subsequently for seed, when no doubt the occurrence of Italian rye grass would contaminate the sample.

It is during the past decade only that grasslands have become the subject of scientific research, and there is still much to learn about them. Many of the details which have been discussed, obviously need further investigation; the inter-actions of species which may compose a pasture have still to be fully studied; and new species and strains are wanted to supplement the rather limited number which can be successfully sown in Victoria to-day. An exact knowledge is wanted also of the different periods of growth of all our pasture plants, if a range of pasture types is to



Subterranean Clover overcoming Wire Grass.

Shall we send Yates' Current Price List? — free on application.

be formulated, which will give prolonged green grazing to the various classes of stock which graze our fields. Nevertheless, there is much sound knowledge available from the experimental work which has already been done, the experience of farmers in all phases of pasture establishment and management is increasing, and we are in a sounder position to lay down and maintain highly productive pastures than ever before.

Perennial rye-grass, cocksfoot, *Phalaris tuberosa*, white clover and subterranean clover are the species mainly employed in compounding permanent pasture mixtures. Two or more of each are generally used, chiefly according to the ability of the climate and the soil of a district to maintain them. The scope of each species is limited by the extent of its adaptation to a certain environment. Each has a degree of elasticity which allows it to range across the full breadth of that environment, which may be from light to moderate rainfall, or moderate to heavy, and from sands to loams or loams to clays; but it is definitely restricted within these limits. It is thus of importance to appreciate the chief characteristics of the above principal pasture species if each is to be employed in its proper place, and to the best advantage.

Perennial rye-grass is adapted to soils of heavy or medium texture, and makes its growth during autumn, winter, and spring, but is dormant during summer. It is suppressive of other plants, and should be used in small or moderate proportions, if the presence of other grass species is desired to any extent. On suitable soils and in favourable situations it will form a permanent pasture in areas receiving as little as 20 inches of rain annually, though for general purposes on a wider range of soils about 25 inches or more appears to be required.

Cocksfoot prefers deep, free loams and peaty soils, though it also thrives well on somewhat heavier classes of soil. It is valuable for its summer and autumn growth, as well as its spring production, and as it is, by nature, a summer grower, it requires fair summer rains. In the Gippsland hills it is often described as the "dry-weather grass," though it must be stated that the Gippslander's conception of dry weather is not quite the same as that of farmers in other parts of the State. Cocksfoot is at its best in areas receiving 40 inches or more of rainfall a year, where it forms a highly productive pasture under favourable summer conditions. Apparently it would also form a satisfactory pasture on certain soils in areas receiving 30 inches or even less, but it would be necessary to give it greater protection during the summer months if it were not to succumb to over-grazing. The fact



An Improved Pasture of Perennial Rye Grass and Subterranean Clover.

that it gives a green summer bite renders it highly susceptible to selective grazing in areas like central Victoria and the Western District, where the summer is dry and every green blade is sought after. If not protected more than usual under such conditions, cocksfoot is very vulnerable, and is seriously weakened, and even killed, by continuous grazing.

Phalaris tuberosa is adapted to heavy clay soils and to light soils having a heavy clay subsoil within 15 or 18 inches of the surface. It demands high soil fertility for leafy growth, and it is possible that many soils now unsuitable will maintain it satisfactorily, when their fertility has been raised by the cultivation of subterranean clover, for a few seasons.

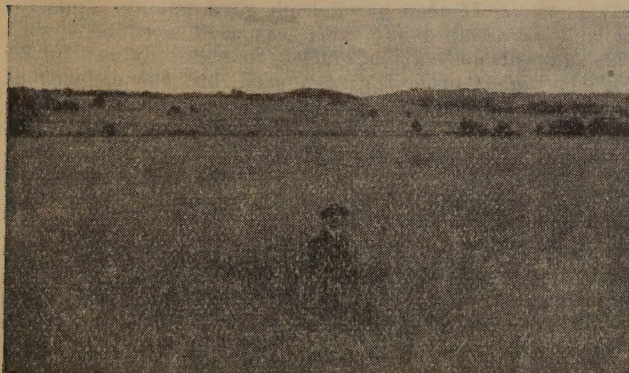
Phalaris is more drought resistant than perennial rye-grass and, on the other hand, will withstand flooding and wet conditions better, once it is established. It is not equal to perennial rye-grass in soils which suit this latter species, and its principal sphere of usefulness will no doubt be found in those drier districts where perennial rye-grass fails to persist. As it commences growth later in the autumn and makes more winter growth than perennial rye-grass and sustains it longer into the spring, it should also be useful for a change of pasture in rye-grass districts.

Its use in all districts is limited at the present time by the high cost of seed and the difficulty in securing a strike. The plant is extraordinarily difficult to establish except on very clean land; it is slow to germinate, is a tardy grower in the first year and sensitive to competition from other plants. As a mature plant it is extremely resistant to competition and maintains its hold on the soil against all other species. It does not spread from field to field like rye-grass and subterranean clover, and must be sown down to become established in those places where it is wanted.

White Clover is adapted to moist conditions. It prefers the same class of soil as rye-grass, and the fairly heavy and well-distributed rainfall favourable to cocksfoot. It is thus usually found associated with rye-grass under very good conditions, and this gives the key to the pasture mixtures in which its inclusion would be most suitable.

There is an important point concerning white clover in pasture management which should not be overlooked. It is a lowly creeping plant which is largely crowded out by tall growth, and is, for example, seriously checked by a hay crop. Close grazing is therefore desirable to maintain white clover in plentiful proportion in a pasture, so that it may make a liberal contribution to the composition of the sward.

Wimmera rye-grass differs from the other two rye-grasses in being strictly annual and earlier to flower. It makes very good winter growth. It could be used



A Seed Crop of *Phalaris tuberosa*.

as a cover crop in districts of fair rainfall, or as a temporary grass element in districts of low rainfall where the perennial kinds will barely persist. In such cases it may be permanently maintained as a self-sown crop by light cultivation every second or third autumn.

Subterranean clover exhibits adaptation to very wide differences in rainfall. Though it definitely prefers free loamy soils for maximum growth, it grows under all conditions with rye-grass or cocksfoot where white clover is a doubtful or definitely negative quantity. It is capable of good growth also on lighter soils and in areas of lighter rainfall than perennial rye-grass, and is thus often found as companion plant to our native wallaby grass or *Danthonia*, and to annual grasses such as goose grass (*Bromus mollis*), spear grass (*Bromus sterilis*), and Wimmera rye-grass (*Lolium subulatum*). It makes exceptional response to phosphatic top-dressing.

Subterranean clover is an annual, and arises as a self-grown crop each year, providing valuable winter as well as late autumn and spring feed. If good winter growth is to be obtained, the young plants should receive protection in autumn to give them an opportunity to become well established and deeply rooted before winter sets in.

Strawberry clover is a creeping perennial clover which grows in spring, summer, and early autumn. It is adapted to heavy flat soils which are wet in winter and moist in summer, and though important in its place, its usefulness is restricted to small areas along rivers, creeks, and "black leads" in the better rainfall districts. It is slow to establish, both from seed and from the more usual method of heeling in runners. Though commonly regarded as appreciating a salty soil, it seems more correct to say that it is tolerant of salty conditions more than other common pasture plants, and grows equally well, if not better, in the absence of salt.

TEMPORARY SPECIES.

Grasses.

Suitable strains of short-lived rye-grasses are available for inclusion in a seeds mixture as cover crops to other grass and clover seeds. They have the advantage of being ready growers and of tending to suppress weed growth in a young pasture, while their disappearance in the second or third year makes room for clovers and slowly-developing perennial grasses.

Italian rye-grass is suited to districts of good rainfall (30 inches or more) and late springs; it is highly productive, palatable and nutritious, and is readily grazed by stock. It makes good winter growth, but



A Well-balanced Improved Pasture.

rather less than the next two species, which, however, do not remain green as late in the spring.

New Zealand South Island rye-grass resembles Italian rye-grass in habit, but its seeds have no awn or bristle. It consists of a mixture of annuals and longer-lived plants, makes good winter growth, and is palatable and nutritious. It could be used as a cover crop, as a substitute for Italian rye-grass, in districts of good rainfall, and could probably replace it altogether with advantage in districts receiving a rainfall of 25 inches or less.

Clovers.

There are two clovers which make relatively good growth in the first year. They are useful in increasing the amount of grazing and in providing a better balance of clover to grass in a young pasture. Both are sensitive to prolonged dry summer weather, and are suitable only for districts of good rainfall.

Red clover is suited to deep, free, well-drained soils and appreciates a good summer rainfall. It is winter dormant, but makes good growth at other seasons. Individual plants usually last three or four years, but the species may persist for a longer period by re-seeding.

Alsike clover is suited to stiff, damp clay soils. It requires much the same rainfall as red clover, is rather less productive, and matures somewhat earlier in the spring. Individual plants are said to live longer than those of red clover.

MIXTURES AND QUANTITIES.

The rate of sowing depends upon many factors, and perhaps as much upon the purse as any other. If the soil is in very good order, less seed is required than for a rough seed-bed, and a saving may be made in this way. If seed has a high germinating capacity as well as a rapid one, still less seed need be sown. This advantage may be offset to some extent by a slightly higher price for such seed, but the difference is usually to the farmer's advantage, and it pays to buy good seed. An early sowing may also be somewhat lighter than a late one, and it is an advantage, for the sake of economy as well as for the best establishment of a pasture, to sow reasonably early in the autumn.

It is customary—and the custom appears to have a sound basis—to sow more heavily in some districts than others. The heaviest and most expensive sowings are made in Central and South Gippsland, Beech Forest, and such places where rainfall is heavy. Not only are more comprehensive mixtures possible in these moist and fertile areas, but also weeds are usually more abundant and heavy seedings are more de-



Irrigated Pasture at Yanco, N.S.W., two weeks after watering.

Shall we send Yates' Current Price List? — free on application.



Spring Growth on the Tablelands, N.S.W.

sirable to combat them. In areas of moderate rainfall, where simple mixtures are used, and weeds are not so troublesome, it is a common matter to sow down at a cost of 10s. per acre or less; whereas in areas of high rainfall, where more complex mixtures are the order of the day, and where weeds are more competitive, it usually costs from £1 to £1 5s. or more per acre.

A common mixture in areas of about 25-in. rainfall, in which lie the better pastoral areas of the State, is the following:—

Perennial rye-grass	.. ..	10 lb.
Subterranean clover	.. ..	2 lb.
		—
		12 lb. per acre.

It is a frequent practice to sow oats for hay the first year, and broadcast subterranean clover seed as soon as the oats are sown. The clover becomes well established, and seeds freely in the oat crop, leaving sufficient seed in the soil to provide a good stand for the next year, when perennial rye-grass is introduced by drilling in about 10 lb. of seed per acre on the stubble across the old oat rows.

The same mixture of perennial rye-grass and subterranean clover is sown down in various proportions and in various quantities throughout the 25-in. to 30-in. rainfall belt of the State, though not often in greater amount than the following:—

Perennial rye-grass	.. ..	20 lb.
Subterranean clover	.. ..	5 lb.
		—
		25 lb. per acre.

Lucerne, at the rate of 2 or 3 lb. per acre, is sometimes introduced with advantage, particularly on deep, free, well-drained soils. Strawberry clover and white clover are often added, and may even displace the subterranean clover on heavy moist flats, but the perennial rye-grass—subterranean clover combination must be regarded as the best all-round and least expensive general-purpose mixture known for our intermediate areas at the present time. Many farmers sow rye-grass only, and wait for volunteer clover growth—cluster, suckling, knotted, and other annual clovers—to appear, and provide the legume content of the pasture. In this connection it is interesting to note that the first of these, cluster clover, is increasing in popular regard, and flowing more freely in commercial channels, especially in Central Victoria, where it is regarded as being very suitable to the district.

In districts of 20-in. to 25-in. rainfall, *Phalaris tuberosa* is worth trial on the heavier and more fertile

soils. If a summer fodder crop of millet or sudan grass can be grown, the land is freed from weeds and may be prepared in good order for seeding down by light surface cultivation in the autumn. The following mixture has been found satisfactory:—

<i>Phalaris tuberosa</i>	.. ..	4 lb.
Subterranean clover	.. ..	4 lb.
		—
		8 lb. per acre.

In 30-in. rainfall country, the possibility of introducing cocksfoot arises, but there are difficulties associated with its inclusion. If sown with much rye-grass it encounters intense competition; if grazed continuously during the summer it is seriously weakened, and if a long dry summer prevails it loses its hold, and may die or be pulled or knocked out. It therefore seems necessary in such areas, if cocksfoot is to play a part, to sow it either separately or with little rye-grass, and graze it intermittently during the summer. A mixture suggested is:—

Cocksfoot	.. ..	10 lb.
Perennial rye-grass	.. ..	5 lb.
Subterranean clover	.. ..	3 lb.
		—
		18 lb. per acre.

NOTE.—The perennial rye-grass may be replaced by Italian rye-grass.

The value of cocksfoot in such areas lies in the amount of green feed it might produce during the dry summer months. The value of lucerne in this respect, however, is unsurpassed, and though cocksfoot might be successfully sown down in a field or two, the present tendency of farmers to adopt lucerne as the plant to fill the gap between spring and autumn in the supply of green feed has much to commend it.

In the 25-in. to 30-in. rainfall belt, there are moist soils and situations where white clover and strawberry clover command attention, and should be included in the mixture, as, for example, as follows:—

Perennial rye-grass	.. ..	15 lb.
White clover	.. ..	1 lb.
Strawberry clover	.. ..	4 oz.
Subterranean clover	.. ..	2 lb.
		—
		18½ lb. per acre.

Some farmers prefer to omit subterranean clover from such situations, and increase the amounts of white



Single Plant Selections of Cocksfoot Individual Varieties in type.

and strawberry clover. This is a matter of judgment, and of knowledge as to the suitability of a field to these species. If the subterranean clover be omitted, and top-dressing is practised, a volunteer growth of various clovers will normally arise within a few years if the white and strawberry should fail.

In the areas of high rainfall, 35 inches and over, careful appreciation of the requirements of each species is needed if a thoroughly satisfactory mixture is to be compounded. The soil preferences and water requirements of each species should be carefully considered before deciding what to sow in a field, or in fact in different portions of a field. For example, white clover is selective of moist patches, and subterranean clover of dry places; rye-grass exhibits a preference for heavy, well-compacted soils, and cocksfoot for deep and porous soils. In a general way rye-grass and white clover show adaptation to similar areas under high rainfall, and so also do cocksfoot and subterranean clover, but there are exceptions to this rule. It is, however, a very useful guide, and mixtures may, with a reasonable assurance of success, be compounded according to the following directions:—

For heavy soils—

Italian rye-grass	5 lb.
Perennial rye-grass	15 lb.
White clover	3 lb.
—	
	23 lb. per acre.
—	

For deep porous soils—

Italian rye-grass	5 lb.
Cocksfoot	15 lb.
Subterranean clover	4 lb.
—	
	24 lb. per acre.
—	

For general purposes on heavy to medium soils—

Perennial rye-grass	10 lb.
Cocksfoot	10 lb.
White clover	2 lb.
Subterranean clover	2 lb.
—	
	24 lb. per acre.
—	

For general purposes on medium to light soils—

Italian rye-grass	5 lb.
Cocksfoot	10 lb.
Perennial rye-grass	5 lb.
Subterranean clover	3 lb.
White clover	1 lb.
—	
	24 lb. per acre.
—	

Many farmers like to include in the above four mixtures for heavy rainfall areas temporary clovers such as:—

New Zealand cowgrass ..	2 lb.
Alsike	2 lb.
—	
	4 lb. per acre.
—	

The object is to secure more clover feed quickly in the first season, and better summer growth during the first summer or two.

The mixtures given are intended only as a general guide to those in doubt as to what grasses and clovers to sow down. Special plants such as Paspalum, crested dogtail, Timothy, Lotus major, and the like, have been excluded from the discussion because of their unsuitability for general purpose requirements.

Consideration of the subject of pasture establishment could scarcely take place without reference being made to the desirability and importance of top-dressing. The phosphatic requirements of young crop plants such as the pasture species are very high, and vigour and health are influenced by the presence of a readily available supply. The rate of application of superphosphate varies from 90 to 180 lb. per acre, according to the average annual rainfall, the heavier rates being applied in the districts of higher rainfall.

PRINCIPAL STRAINS OF PASTURE SPECIES.

Every pasture species consists of a number of strains, which differ from each other in leafiness, period of growth, time of flowering and length of life. As these differences result in one strain being more adaptable than another, to certain climatic and soil conditions, it is necessary to understand the characters of the various principal strains if the most suitable for each district and for each purpose are to be used in pasture establishment.



Improved Pasture Area on a well-known Horse Stud in New South Wales.

Shall we send Yates' Current Price List? — free on application.



Wimmera Rye Grass on Western Slopes, New South Wales.

PASTURE GRASSES.

EACH variety of grass in a pasture serves a special purpose. It is most important to sow the correct varieties and strains to suit each varying condition of soil and climate and so to have a combination that will yield rich grazing over the longest possible period. From our very long experience we are able to advise you on these matters, and if you submit brief particulars we will gladly do our utmost to help you with a prompt reply. It is essential that you have clean seed of strong germination, and the variety and strain must be right: our reputation is behind you on these matters in every line we offer.

PERENNIAL RYE GRASS. (*Lolium Perenne*)

The king of permanent grasses, Perennial Rye-grass will only establish itself in districts where a good winter and fair summer rainfall is experienced. It demands high soil fertility and proves most permanent in rich soils containing a fair admixture of clay. It does not thrive so well on loose soils which are liable to dry out. By selecting the most permanent types, such as Yates' Government Certified Perennial Rye-grass, the slightly higher price should be well re-paid by the long-lasting sward obtained. In our experience the higher-grade Perennial Rye-grasses stand hot, dry summer conditions remarkably well, whereas the lower grade types have often proved disappointing in this respect. Sowings of genuine certified seed are well worth trying in country where previous sowings of Perennial Rye-grass have proved failures.

Many areas previously considered unsuitable for Perennial Rye-grass have been so enriched by dressings of superphosphate and by the introduction of Subterranean Clover that they will now carry a good sward of the best type of Perennial Rye-grass if over-sown in the autumn and the seed well harrowed in. In sowing to provide winter feed in renovated Paspalum paddocks, a fair proportion of Perennial Rye-grass should be included in the mixture, and we strongly urge the use of our Certified strain.

"YATES' SPECIAL PERMANENT PASTURE GOVERNMENT CERTIFIED PERENNIAL RYE-GRASS" is absolutely superior in every respect as regards permanency and dense swarding type. The price is necessarily higher because paddocks of this class of Perennial Rye-grass are not free seeding as the less permanent strains. It is the less permanent types which seed most freely. We stock seed of high vitality and heavy weight, besides which it is so reasonably priced that almost all buyers use it. There are now two distinct strains of this type:—

NEW ZEALAND GOVERNMENT CERTIFIED HAWKES BAY TYPE—The original perennial strain and generally the best for most conditions. It is outstanding for keeping green well into the summer.

VICTORIAN GOVERNMENT CERTIFIED WESTERN DISTRICT TYPE—Very similar to the Hawkes Bay type but tend to make more winter and early spring growth, but becomes dormant quicker in the summer.

SPECIAL NEW ZEALAND GOVERNMENT CERTIFIED HAWKES BAY MOTHER SEED—For those desiring to lay down an area for seed saving, we recommend this strain, but for the sowing down the best type of pasture for grazing purposes, the "Permanent Pasture," is thoroughly satisfactory in all respects, and it is not worth paying the extra for this strain.

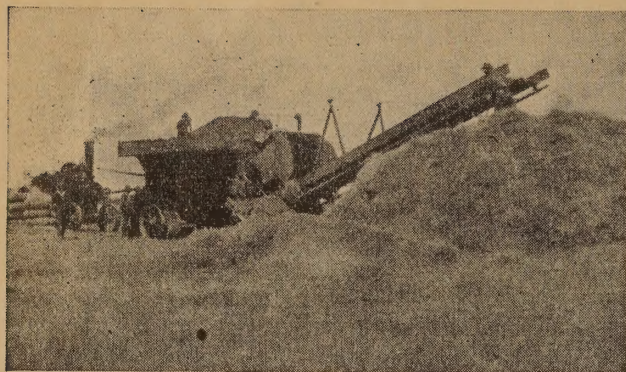
UNCERTIFIED NEW ZEALAND PERENNIAL RYE-GRASS—This is cheaper uncertified seed and is not now used to anything like the extent of a few years ago before the advent of Certified Seed.

Our clients should bear in mind that the quicker-growing, less-permanent forms of Rye-grass still have a small place in the farm curriculum; they are quicker growing and more palatable to stock, and therefore in temporary pastures they are perhaps preferable. The Italian Rye-grass is mostly used for this purpose, but ordinary Perennial may be preferable under certain conditions.

WIMMERA RYE GRASS. (*Lolium Rigidum* Var. *Strictum*)

A heavy seeding annual species of the Rye-grass family, which is exceedingly hardy and drought resistant, and is proving of utmost value to Australian graziers. It is readily eaten by all classes of stock, and adapts itself to varying climatic conditions. When sown in the autumn the seed germinates freely, and being an annual will re-seed itself each year. The seeding is very heavy, and provided sufficient cover is present, it will thicken up from season to season. Wimmera Rye-grass will give of its best on fertile

Yates' Current Price List contains Pasture Grasses, Clovers, Fodder Crops, etc.—send for one.



Threshing a Seed Crop of Rye Grass in New Zealand.

WIMMERA RYE GRASS (continued)—

soils. It may be introduced into existing pastures by scattering the seed on the surface and following this with a cultivator or heavy agricultural harrow.

On the slopes and tablelands it is advisable to sow Wimmera Rye in conjunction with Subterranean Clover, using about 4—6 lbs. Wimmera Rye-grass and 2—3 lbs. Subterranean Clover per acre. Superphosphate should always be added, using about 1—2 cwt. per acre, whether the grass be sown alone or with Sub. Clover. Wimmera Rye-grass thrives on nitrogen, and unless sufficient of this element is maintained by clover growth good results cannot be expected. Wimmera Rye-grass and Sub. Clover are really complements to each other, the Sub. Clover through the presence of superphosphates makes invigorated growth and deriving plenty of nitrogen from the air, stores the excess in the soil, thus supporting the Wimmera Rye-grass.

Where the rainfall is not sufficient to ensure the success of Subterranean Clover, Lucerne is used with great success in combination with Wimmera Rye-grass. To establish the Lucerne, however, the land must be ploughed and properly prepared. Sow about 2—3 lbs. Wimmera Rye-grass with about 2 lbs. Lucerne per acre. This mixture makes a great all-the-year-round pasture when properly managed.

It is advisable to include from 1—3 lbs. of Wimmera Rye-grass in all permanent pasture mixtures for sowing on hilly country in districts of good rainfall, because its heavy seeding habit and the quick seasonable germination of the seeds ensure a continuance of good winter grass should an extra severe summer drought thin out the perennial grasses.

To the sheep and wheat farmer, Wimmera Rye-grass is of special value, owing to the fact that when harmful grass seeds are plentiful, farmers with areas of Wimmera Rye have clean paddocks in which to turn lambing ewes, and so are able to market lambs free from Spear and Barley grass seeds. In many localities lambs have to be marketed before they are at their best in order to escape grass seed; but the seed of Wimmera Rye has no detrimental features, and does not damage the wool or eyes of sheep. It will provide green feed for seven or eight months in the colder parts of the year, after which, although it dries off, it is very nutritious as dry hay, the seeds remaining attached to the dry straw for a long period.

A special feature of Wimmera Rye (when dry) is the fact that the plants retain their seed well, the long outer glume holding the seed firmly against the seed stem. Sheep readily eat these dry seed stems, and thus obtain a certain amount of grain with their roughage.

WIMMERA RYE GRASS (continued)—

The seed should be sown in March or April to obtain the best results, but the planting period may be extended to May or even June if it is necessary to wait for favourable conditions.

It must be remembered that although this grass persists for many years on account of the free seeding habit, it will soon be eaten out if rabbits are plentiful, or if it is overstocked at seeding time.

ITALIAN RYE GRASS.

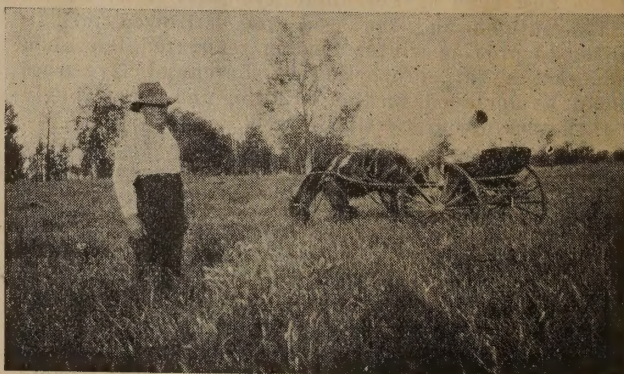
(*Lolium Italicum*)

Italian Rye-grass is a biennial under favourable conditions. It is probably the quickest and most luxuriant growing of all the winter grasses when sown on well-prepared land. We recommend that a little Italian Rye-grass be included in all grass mixtures sown in districts of good rainfall. Acting as a "nurse" crop for the slower developing perennial grasses in the mixed sowing, Italian Rye-grass also gives a quick bite to stock which are thus encouraged to tramp quietly over the newly sown area. This unhurried "hoof cultivation" is just what is required to compact the soil and strengthen the root systems of the developing perennial grasses.

As a "Temporary Pasture" grass, Italian Rye-grass is superb. 15—17 lbs. of this grass with 3—5 lbs. of Perennial Red Clover per acre, or a mixture of Perennial Red and Berseem Clover, give about the quickest-growing pasturage of all grasses and clovers. There is no sweeter grazing for stock during the cooler months of the year, and no better "Meadow Hay" is produced when cut in the late Spring. A "Temporary Pasture" of this type will last for upwards of two years or more (if well managed), giving a wonderful return over the period of its most vigorous growth. For spelling cultivation land which may be subsequently brought back into cropping without fear of the grass and clover persisting when ploughed under, there is really nothing better than this mixture. The best time to sow is in the autumn. Fertile soil conditions are essential.

On rich lands in good rainfall areas Italian Rye-grass is deserving of more notice than it has hitherto received as an alternative crop to Oats for winter and spring grazing. Its very quick, upright, succulent, leafy growth, palatability, and ability to stand very heavy stocking, give it a great value in this respect. As a smothering crop to clean up cultivation land a heavy sowing gives good results.

Sow up to one bushel (20 lbs.) per acre for this purpose, or if including Clover or Purple Vetch reduce quantity a little. It also does well with Rape. When sown in mixture with other grasses, a much smaller quantity is used, according to circumstances.



Wimmera Rye Grass, Quandialla, New South Wales.

Shall we send Yates' Current Price List? — free on application.

ITALIAN RYE GRASS (continued)—

Through years of cultivation the true biennial Italian Rye-grass has to some extent become annual through crossing with inferior Perennial Rye-grasses. Concentrated effort of plant selection have succeeded in obtaining a real biennial, and we now offer two strains:—

NEW ZEALAND GOVERNMENT CERTIFIED ITALIAN RYE-GRASS—The best leafy biennial type, most suitable for sowing when laying down temporary pastures, particularly in combination with Perennial Red Clover. On good land this mixture will give a magnificent yield for 2—3 years.

UNCERTIFIED N.Z. ITALIAN RYE-GRASS—The annual type, which is quite satisfactory for use in mixture with Perennial Grasses or for sowing over cultivated land and through maize as a provision for winter feed for one season.

COCKSFOOT.

(*Dactylis Glomerata*)

Although Cocksfoot thrives on the heavier classes of soils it prefers deep, rich and free loams and peaty soils. It makes splendid spring, summer and autumn growth, and being a summer grower requires fair summer rains. It is especially suitable for second-class soils, hilly country, and areas of hot, open red soils, where Perennial Rye-grass is difficult to establish.

Sow Cocksfoot mainly in the autumn, but spring is also a good time in many districts. Include a little Perennial Red, White and Subterranean, and in deep soils, Lucerne, as well as other varieties. Two to four lbs. per acre should be included in grass mixtures, or if sown alone, 15—20 lbs. per acre with a little Clover Seed.

One aspect to keep in mind is that it provides green grazing during spring and summer months when winter grasses are dormant and the likely overstocking is dangerous, for the grass will be considerably weakened or even killed if over-grazed under adverse conditions.

We offer three types, the seed being heavy, thoroughly machine cleaned, and is tested to give good germination and a quick even strike.

YATES' PRIMEST NEW ZEALAND AKAROA TYPE GOVT. CERTIFIED MOTHER SEED—This seed is New Zealand grown and of the best permanent perennial type. Much imported European Cocksfoot seed has caused dissatisfaction by dying out after a season or two of Australian climate, the above strain, however, is very superior in its strong persisting habit under our conditions.



Phalaris Tuberosa for Seed. Yates' Seed Farm, Tasmania.



Experimental Plots of Grasses in our Trial Grounds.

COCKSFOOT (continued)—

LOCAL VICTORIAN COCKSFOOT — Very good strain and generally compares well with the best Akaroa. Unfortunately no certification scheme exists to guarantee that Victorian Cocksfoot has been saved from the best pastures. Clients wishing to sow seed of undoubted origin should specify the New Zealand Akaroa type, Govt. Certified.

PRIME DANISH COCKSFOOT—For those specially requiring, we usually stock a little of the cheaper imported Danish Cocksfoot in a very nice sample, but although this strain shows great vigour for the first year, the crowns quickly die out and allow weeds to take their place in the pastures, but for temporary pastures it has its use.

PHALARIS TUBEROSA.

(*Bulbosa*)

A wonderful winter-growing grass of outstanding permanency under quite adverse conditions. It is adaptable to heavy clay soils or even light soils provided there is permeable clay subsoil at a reasonable depth. Soil of high fertility is necessary to create maximum growth, and should Subterranean Clover be introduced, soils which now will not maintain it will do so through the increased fertility within a few seasons.

Once established it is highly persistent and maintains itself better than Perennial Rye-grass through-out droughts and even extensive wet conditions. In situations most suited to Perennial Rye-grass, *Phalaris Tuberosa* is by no means superior, and its main use is in drier localities not tolerant to Perennial Rye-grass.

Phalaris Tuberosa presents great difficulty when attempting to establish it. It is most difficult to secure a good strike as being slow to germinate it suffers greatly from the competition of other grasses or weeds. The land must be thoroughly cleansed. Once established, however, it is highly persistent and will resist the competition of all other plants. Owing to being susceptible to competition from other surface rooting grasses in its early stages of growth, it is preferable to sow *Phalaris Tuberosa* in conjunction with Clovers only. It is necessary to introduce the plant in all places where it is required as, unlike Sub. Clover or Rye-grass, it does not spread from paddock to paddock of its own accord.

We now handle two types of *Phalaris Tuberosa*:—

GOVERNMENT CERTIFIED PERMANENT PASTURE—This seed is saved from areas which have been laid down for many years, and proved to be the real permanent type. The seed is saved and bagged under Govt. supervision, and is certified and sealed.

PHALARIS TUBEROSA (continued)—

UNCERTIFIED AUSTRALIAN-GROWN PHALARIS TUBEROSA—This seed is grown in a district where no certification scheme is at present in force. The seed, however, is from known pastures which have been approved of by the Department of Agriculture as true permanent type. In our opinion this seed is just as good in every way as the Government Certified for general planting, and usually can be supplied at very much cheaper rates.

PRAIRIE GRASS.**(Bromus Unioides)**

For rich loamy land, with a good rainfall, this is a most valuable grass, particularly for the dairyman. It gives a wonderful growth of succulent palatable fodder. It is essential that common Prairie Grass be not constantly grazed, as this will kill it out. When a fair growth has been made, it should be stocked heavily, and when fed down spell again until a good new growth has been made. By having paddocks well sub-divided, this system of grazing can be carried out. It will prove for grazing almost as valuable as a crop of oats, with the advantage that it will last for several years without re-sowing. On soils liable to be tramped very hard and which remain in this set condition, it will not respond to this treatment so well. To maintain a good covering, it should be allowed to seed itself down at the end of each growing season. It is a good plan to use a little in pasture mixtures to give a good body of feed while the Perennial Grasses are establishing themselves. If sown with Lucerne on good land the combination will give wonderful grazing if spelled regularly after being closely grazed. The Prairie Grass gives good results when Lucerne is dormant.

Sow 20 to 40 lbs. per acre if used alone. When used in mixtures, use one to three pounds per acre.

YATES' FINEST BRIGHT RE-MACHINED — A heavy grade plump seed of a very high percentage of germination and purity.

PERENNIAL PRAIRIE GRASS.**(Bromus marginatus)**

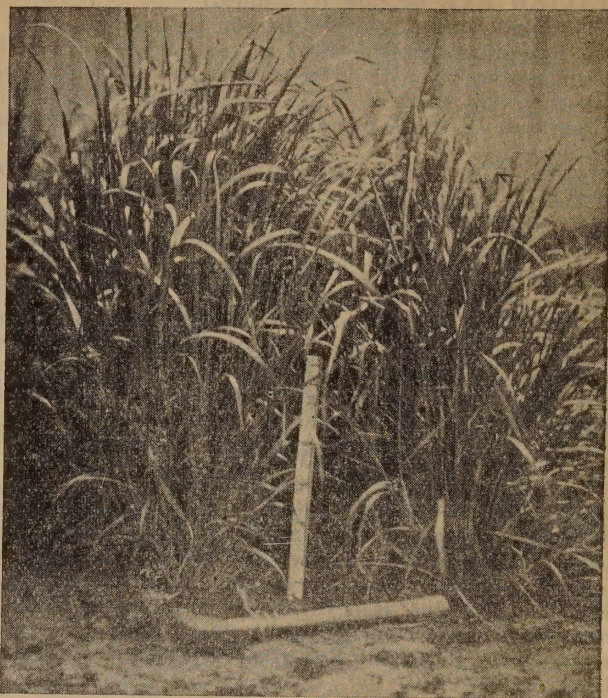
While this species is botanically the same as the ordinary Prairie Bromus Unioides, it comes from a single plant selection of a thick-stemmed, procumbent, stooling type, which apparently withstands constant stocking very well. It is undoubtedly much higher yielding and palatable than the ordinary strains.

In grazing trials, particularly under irrigations where the pasture is very closely stocked, Yates' Perennial Prairie has shown up exceptionally persistent and valuable.

The only seed we offer is from specially grown crops developed from the original stud block.

TALL OAT GRASS.**(Avena Elatior.)**

This grass is now frequently used in pasture mixtures and is proving very hardy. It appears to replace Cocksfoot in soils too poor or light for the latter. It has a deep-rooting system, which protects it against drought. It is a good winter grass and a quick grower. Stock may at first be averse to it, but when used to it eat it readily, especially if sown in mixture with other grasses. Customers are recommended to try this grass in land which is rather light in character for other artificial grasses, and we would be pleased to have reports after testing. It is best

*Italian Rye Grass.***TALL OAT GRASS (continued)—**

included in mixture with other grasses at the rate of from one to three pounds per acre.

DANTHONIA (WALLABY GRASS).

One of our main native grasses found naturally all over Australia down to the region of about 19-20-inch rainfall. It is a very valuable species and makes excellent pasturage, particularly for sheep. It does not demand high soil fertility and in the better rainfall districts it is gradually superseded by the more succulent Rye-grass, etc., as soil fertility is built up by Clover growth and fertilising. While it persists well with free ranging stock it is gradually eaten out by persistent heavy grazing. It is rather difficult to establish from seed and occurs naturally over most areas suitable for its growth.

SHEEP'S BURNET.

A perennial herb which is very deep-rooting and once well established remarkably persistent, quickly shooting away after every shower. It is an excellent pasture constituent for second-class country where it is impossible to establish a good sward, particularly on rough but sweeter well-drained hilly country.

We specially recommend its inclusion in mixtures for country of the type mentioned above in districts of 25-inch rainfall and over, particularly where the summer is reasonably cool. It has gained a good reputation by keen wool-growers, as a proportion of Burnet in the pasture seems to add quite a sheen and softness to the handling of the wool.

Whenever possible our supplies are drawn from Australian sources, but owing to seasonal conditions, the harvests are sometimes uncertain and occasionally we have to draw on European supplies. The local seed is to be preferred as it is of better germination and of hardier habit.

Sow 10-12 lbs. per acre alone; when including with Grass mixtures, use 1-3 lbs. according to mixture.

Shall we send Yates' Current Price List? — free on application.



Threshing Couch Seed with Horses,
North Coast, N.S.W.

TALL FESCUE.

(*Festuca Elatior*)

A strong-growing, coarse grass, now considered to be distinctly valuable. While it may not have quite the feeding value of some of the finer grasses, it is extremely hardy, and is adaptable to the poorer classes of soils, and if kept fed down, is quite palatable. We recommend a proportion of this in all mixtures to be sown on light land.

In wet situations, Tall Fescue is liable to drive out everything else, and its rank growth becomes unpalatable. In our opinion, its use should be confined to second-class open country in cold districts of uncertain rainfall.

Our supplies of Seed are drawn from European sources so as to get samples free of Ergot, which usually infests New Zealand seed.

RHODES GRASS.

(*Chloris Gayana*)

A very strong-growing grass, which, rooting at every joint, soon covers a large area. Excellent for hot districts, but succeeds well in a large range of situations and climates, except where heavy frosts are experienced. It is quick germinating after rain, but needs soft moist weather for an ideal "strike." It makes growth rapidly, and is very palatable to all stock when kept well grazed. When well established it is remarkably drought-resistant. It is very largely used for surface sowing after clearing and burning-off scrub in the coastal areas. In some of the inland districts of Queensland, Rhodes Grass is proving of the utmost value and has also been of value in some parts of the Western Slopes of N.S.W., especially in areas where summer rains predominate. When planted with Lucerne, sow four pounds of Rhodes and two or three pounds of Lucerne per acre. When sown alone, six to ten pounds per acre is sufficient, if good quality seed is used. Sow in spring; or in early autumn in very mild climates. It requires warm, moist weather to germinate successfully. In cooler districts sowing should be confined to the spring.

PASPALUM DILATATUM.

(Yates' Prime "Hand Shaken")

Does well alone or in conjunction with Rhodes Grass in coastal districts after a burn. The seed should be sown during spring, summer or early autumn, say from August to April. Succeeds best where moist warm conditions prevail. Paspalum should be kept well grazed. If it is allowed to become rank it swamps out clovers and winter-growing grasses, such as Rye-grasses and Cocksfoot. These choice grasses and Perennial Red Clover and White Clover do well with Paspalum, if the grazing is rotational and well managed. It is an excellent practice to sow a few pounds of Perennial Red Clover and White Clover with the Paspalum, as these provide feed when the latter is more or less dormant. Sow ten to twelve pounds of Paspalum per acre.

GIANT OR BLUE PANICUM GRASS.

(*Panicum Antidotale*)

Is a free seeding perennial grass making its main growth in the summer. It is extremely drought-resistant and is particularly adapted to areas of restricted rainfall where summer storms are experienced, such as Northern N.S.W. and the inlands of Queensland. It appears to be well liked by stock and should be tried in all districts of rather low rainfall where the more usual grasses will not do. Particularly recommended for shallow country unsuitable for Lucerne.

This grass was originally brought into commerce by the Agrostologist's Branch of the Department of Agriculture, who found it growing in the Northern Territory, and its value in certain districts has already become well established.

Generally the seed should be sown in the spring at the rate of about four pounds per acre on well-prepared country, but small quantities could be sown with other grasses if thought wise in the autumn. However, the seed is usually expensive, and at present it is recommended that it be only sown on cultivated areas.

KENTUCKY BLUE GRASS.

A grass that in the past was much used in the colder Tableland districts but generally has been superseded by Perennial Rye-grass and such varieties as *Phalaris Tuberosa*. It seems particularly adapted for heavily-timbered country in the coldest districts. It is largely used for lawns, where it makes a close sward of beautiful colour.



Kikuyu Grass, on North Coast, N.S.W.

Yates' Current Price List contains Pasture Grasses, Clovers, Fodder Crops, etc.—send for one.



A Renovated Paspalum Paddock.

COUCH GRASS. (Cynodon Dactylon)

Stands heat and drought well, and is especially suited for dry and sandy spots on the coast, and other mild districts of fair rainfall, where other grasses will not flourish. It is also of great value for binding loose soil, sand banks, etc. Unless the ground is warm and moist, the germination is often unsatisfactory; therefore, sow in warm weather after good rains, using ten pounds per acre.

In warm climates this grass is very largely used for lawns, making a close, fine turf, and withstanding considerable heat and drought. For this purpose about six pounds of seed are sufficient for about 100 square yards. Sow in spring and summer.

AGROSTIS.

The commonly known species of this family is *Agrostis Tenuis* (N.Z. Brown Top or Bent), which is now largely used in Australia for lawns and playing swards. Provided ample water is available throughout the summer or the weather is reasonably cool, *Agrostis Tenuis* is remarkably hardy, but to keep it in full growth throughout the summer, it must be kept growing by manuring well and copious watering whenever necessary.

As a turf grass it is superb and makes by far the finest and best sporting turf we have in Australia. In cooler districts it is inclined to be a little soft and this can be corrected by adding Chewing's Fescue to the mixture, but on the Coast of N.S.W. it is generally sown alone.

As an agricultural grass it has been little used, but it may have some value in the colder districts for sour rather wet land too cold for the success of Rye-grass. Under these conditions it will grow on land not sufficiently fertile to carry a good sward of Rye-grass or White Clover.

The seed we stock is bought specially for lawn sowings, and the seed is Government Certified as free of the coarser-growing Red Top or *Agrostis Vulgaris*.

Agrostis Vulgaris or Red Top is used to some extent for sowing on golf fairways or where a rather coarse sward is satisfactory. As an agricultural grass its use is limited to low rather wet land in cold climates similar to English meadow conditions.

CHEWING FESCUE. (Festuca Rubra Var.)

This grass has been grown in New Zealand with success on poor light land of the South Island where

CHEWING FESQUE (continued)—

the climate is cold but rather dry for Rye-grass. It forms a good sward where other grass would not succeed. It is permanent and throws up a useful amount of feed in the early spring, particularly good for sheep. We think that a little of this grass might be included in mixture for permanent pasture in rather sour hilly country in the colder fine-wool-growing districts of good rainfall, where it should be valuable for thickening up existing pastures. Being a dwarf grower and exceptionally hardy, it is very suited to such purposes. This grass is very palatable to sheep, and will green up after rain any time of the year. In cooler districts it makes an excellent mixture with *Agrostis* for lawn swards, as it counteracts the rather soft growth of the *Agrostis* under such conditions.

PASPALUM COMPRESSUM. CARPET GRASS.

A dwarf-growing variety of Paspalum, proving of some value for poor sandy, ridgy stretches of country in districts of fair rainfall. Should be sown on poor land only. Sow five pounds per acre in spring. It is much inferior to *Paspalum dilatatum* on good Paspalum country.

KIKUYU GRASS.

(*Pennisetum Clandestinum*)

A perennial grass with a strong system of surface and underground runners which quickly root at the joints and then send up fresh growth. It should succeed in almost any district where the rainfall is 20 inches or over, and is of particular value for poor sandy soils where it is usually difficult to grow anything but weeds, though naturally the richer soils will give correspondingly better results. It has proved of great value in combating bracken fern and other strong weed growth.

It does not seed in Australia, therefore it can only be distributed by means of cuttings or rootlets, which we can supply at any time from late winter on. Plantings are usually made during the spring, summer and early autumn months. It is recommended to plough the land, opening up furrows six feet apart, and dropping in the rootlets every three feet. At this rate, about 2,500 plants will suffice for one acre. Do not plant in cultivation ground, as it is difficult to eradicate once it becomes established.



Specimen Plants, Perennial Rye Grass.

Shall we send Yates' Current Price List? — free on application.

ELEPHANT GRASS.**(*Pennisetum Purpureum*)**

It is a vigorous growing plant, attaining a height of 12 to 15 feet. It stands cutting well, tests made by the Department of Agriculture showing a return of 50 tons and more of green fodder per acre per year, and also that this grass is of good feeding quality and that stock relish it, but it must not be allowed to get too high and coarse. Elephant Grass is a summer grass, and a patch should be established in rough places where other fodder crops cannot be grown. The "cuttings" should be planted three feet apart in and between the rows. Plant in spring. The grass does not seed.

GRASSES FOR SWAMPY AREAS.**WATER MEADOW GRASS (*Poa Aquatica*)**

This is used rather extensively on marshy land, and swamps in Gippsland, Victoria, and it is growing in favour in N.S.W. We can usually supply root stocks (seed is not available). This grass is now found to be very useful for swamps in almost any climate and where such areas cannot be drained we advise plantings. Lotus major should be sown about the edge of the swamp. It does well in association with *Poa Aquatica*.

PASPALUM DISTICHUM (Water Couch)

Most useful for salty marshes and other wet areas. Customers should give us a week or 10 days' notice to enable us to arrange supplies of above. We can supply roots only.

CLOVERS FOR PASTURES AND CROP.

CLOVERS are a most essential part of a pasture. No pasture can be complete without a proper proportion of the correct varieties and strains of Clovers. They are essential to the feeding value of the pasture and equally essential to the health and vigour of the grasses. The same care must be given to the choice of Clovers as to the grasses. We are available with the best and promptest advice, and we know how important it is to offer clean, high-germinating Clover seeds of correct strain and variety for the purpose for which they are required. Those few Clovers used for cropping purposes only are also described hereunder.

SUBTERRANEAN CLOVER.**(*Trifolium subterraneum*)**

An annual Clover which makes its growth in the cooler weather, starting off with the first autumn rains, and has a dense spreading habit and is very free seeding. A proportion of the seeds are deposited under the soil, hence the name Subterranean. The seeds are contained in a soft case, which does not hang in the wool, and, being large, are readily licked up by the stock in the dry weather when the ground is bare, just as they do the seed of the ordinary Burr Trefoil. Subterranean Clover is a wonderful soil improver. Sown on poor, rain leached hilly country, with superphosphate, it quickly builds up the fertility of the land. In good rainfall districts Perennial Ryegrass and Cocksfoot, etc., can be introduced into the land where it would never grow before after Subter-

SUBTERRANEAN CLOVER (continued)—

anean Clover has spread well and carried on its good work.

While originally only one strain of Subterranean Clover was generally recognized, now others of interest have been developed. The most commonly used form is the mid-season type or Mount Barker type. We call this our No. 1 Supergrade strain, and it is most useful for all temperate regions.

For use in the drier districts where complete success has not been obtained from the mid-season strain, we recommend the use of Yates' Special "Earlistrain," otherwise known as Dwalganup, W.A. Government certified. This variety seeds a full month earlier than the normal mid-season one, and is better adapted to districts where the springs come in very quickly, and where hot dry spells are experienced at this time of the year.



Good Preparation Pays.

Yates' Current Price List contains Pasture Grasses, Clovers, Fodder Crops, etc.—send for one.



A Portion of a Series of Clover Tests undertaken at our Trial Grounds.

SUBTERRANEAN CLOVER (continued)—

For those clients in cold late districts where the rainfall extends well through the spring and into summer, we are now offering a special Late Strain of Subterranean Clover in our Tallarook. This strain produces very large leaves if well fertilized, and it has a very long-growing period, maturing fully a month later than the normal mid-season strain. It is certainly worth a trial where the normal strain does not give quite so long a grazing period as the climate seems to warrant.

The Special "Earlistrain" has advantages which are causing people to recognize its value in the cooler districts as well as the warmer ones. This advantage consists in a greater fibre content, giving a better balanced ration, and its ability to come away more quickly than other strains after being fed closely.

Many practical men now include a little of the "Earlistrain" in mixture with the normal strain when sowing down areas of Subterranean Clover, and now that we have our Late strain to offer we recommend the practice of including a little of this also in the cooler districts.

Subterranean Clover Yates' No. 1 Supergrade

"	"	"	Earlistrain
"	"	"	Tallarook

See above for descriptions.

As both Subterranean Clover and Wimmera Ryegrass are free seeding annuals, they are the easiest and probably the most satisfactory combination for the sowing of broad acres in grazing country at the present time. If they are planted after the first autumn rains and fed off only lightly for the first year, special care being given them at seeding time, a much improved permanent pasture should be assured in all districts with a good autumn and spring rainfall.

The feeding value of Subterranean Clover is very high, and all classes of stock do exceptionally well on them. Owing to the way it grows in a dense mass it is excellent for sowing in land covered with undesirable weeds or top growth, as it spreads rapidly and tends to choke them out.

SUBTERRANEAN CLOVER (continued)—

On properly prepared land, Subterranean Clover should be sown at the rate of 5-8 lbs. per acre, thus giving a good growth immediately; however, it can be cheaply introduced on grass land by scattering about 2 lbs. per acre and then, if possible, scratching the surface soil with a harrow, but sowing at this rate it may take two to three years to become thickly established.

Most of the country in Australia which enjoys a regular winter rainfall is deficient in phosphates. Subterranean Clover is particularly partial to this food element, and it is essential for success to top-dress with superphosphate when sowing the seed. Established pastures containing Subterranean Clover should be top-dressed annually—or at least every second or third year—with superphosphate.

Most samples of Subterranean Clover seed contain large proportions of Hard Seeds. Our special treatment, where necessary, ensures an even strike, and the high percentage of germination means economy in sowing. Yates' Subterranean Clovers, in three varieties, outstanding for quick, even germination.

WHITE CLOVER.

(*Trifolium Repens*)

This is an essential Clover in all the best permanent pastures. It stands very heavy grazing, and is suitable for all coastal and highland climates of fair average rainfall. The most perennial strain is undoubtedly the best New Zealand grown, and for those sowing with Perennial Ryegrass, Cocksfoot, etc., we recommend one or two pounds per acre of the N.Z. strains.

When sowing with Paspalum, Rhodes Grass, etc., in areas subject to dry spells, the heavier seeding but less perennial European grown strain of White Clover is sometimes used. This strain is the foundation of the quick-growing, heavy-seeding, annual types now almost natural over a large area of the North Coast and other parts. This short-lived strain seeds heavily and leaves the soil well impregnated with seeds, which shoot away with good seasonable rains. However, the N.Z. strains are more permanently rooted, and in temperate districts of good rainfall are much to be preferred, as they are always throwing leafy growth, and, even if checked with a short dry spell, shoot quickly into strong growth with the first shower.

Sow in pasture mixture in autumn mainly, or, in cool climates, when combined with Paspalum or Rhodes Grass, in spring.

YATES' BEST NEW ZEALAND GOVERNMENT

CERTIFIED PERMANENT PASTURE—A very superior strain certified and sealed by the New Zealand Department of Agriculture as saved from the very best types of permanent pastures. It is the true perennial leafy New Zealand type which is undoubtedly the finest strain for rich country of regular rainfall. Owing to its late flowering habit and perenniality it gives good grazing well into the summer and starts away quickly with the autumn rains.

YATES' A.Y. NEW ZEALAND SUPERFINE—Best uncertified New Zealand White Clover containing a good proportion of the leafy permanent type which is the basis of the best certified strain. It is much more perennial than European White Dutch.

CHOICE EUROPEAN WHITE DUTCH—A cheaper grade for those requiring same, and more annual in nature than the N.Z. strains.

Shall we send Yates' Current Price List? — free on application.

PERENNIAL RED CLOVER.

The value of this wonderful plant is now becoming really appreciated and large areas are sown every year. Good Red Clover has wonderful value in the newly-sown pasture as while not permanent like White and Subterranean, etc., it makes quick growth and will last about 2 years, while the more permanent types are becoming properly established, giving good grazing particularly in the late spring and introducing soil fertility for the permanent grasses.

As a temporary pasture for 2 or 3 years especially in conjunction with some quick-growing grass such as Italian, its production is truly enormous, particularly on deep friable rich soil. Red Clover appreciates soils of good depth and rather loose, and in this it resembles Cocksfoot, so that when sowing Cocksfoot in such country the addition of Red Clover is well worth while.

In high rainfall districts Red Clover and Italian Rye-grass are an excellent rotation with grain crops for good cultivation land, as two or three years under the Clover and Italian will revitalize the worn-out cultivation and at the same time provide immense winter pasturage and spring crops of Meadow Hay or ensilage.

Sown with the Oats or Grain crop for winter feed by the dairyman Red Clover will increase greatly the late spring grazing and will to a large extent put back into the soil the fertility taken out by the grain.

When sowing alone use about 10 lbs. per acre, in conjunction with Italian Rye-grass use about 3-5 lbs. of Red Clover and 15-17 lbs. of Italian Rye-grass, in Permanent Pasture Mixtures use anything from 1 lb. to 3 lbs.

We stock the following strains:—

YATES' SELECTED NEW ZEALAND COWGRASS—Which is the best strain of the standard New Zealand Perennial type, quick-growing in the spring, recovering well after cutting or grazing and long lasting.

GOVERNMENT CERTIFIED MONTGOMERY LATE FLOWERING TYPE—This strain is very similar to the type specified above, but it lasts longer into the summer and is rather later in flowering. In New Zealand it has been found of distinct advantage, but generally in Australia its longer season has not yet been well demonstrated.

ENGLISH TREFOIL.

(*Medicago Lupulina*)

A perennial which does best in cold districts and deep soils. It is recommended in mixture with other pasture seeds for these localities. It provides good bottom herbage through the winter, and lasts well into the summer.

It has found great favour in the northern highlands, standing conditions there sometimes unfavourable to other pasture clovers.

We believe this Trefoil has great adaptability, and we recommend farmers in the warmer districts—where it has not yet been grown to any great extent—giving it a trial by including in pasture sowing mixtures.

BURR or "NATIVE" TREFOIL.

(*Medicago Denticulata*)

This is now one of the commonest plants in the in-

land grazing areas of N.S.W., and furnishes a tremendous amount of feed. It grows with the first good autumn rains, giving a heavy yield of lush green fodder throughout the winter and spring. With the approach of summer the plant ripens off and the seed, falling on the ground, then forms a most valuable and highly concentrated food. This the sheep will lick up from the ground and thrive on. Country that grows this Trefoil is essentially fattening country. The burrs are a great disadvantage in purely wool-growing country.

ALSYKE.

(*Trifolium Hybridum*)

Combines to some extent the qualities of the Red Clover and White Clover. Particularly suited to wet or cold climates. Will not stand much heat or drought. Include a little in mixtures for damp situations.

STRAWBERRY CLOVER.

(*Trifolium Fragiferum*)

An excellent variety for low, wet swampy land, subject to floods or inundations. This plant has a trailing habit, and thrives where no other Clovers and very few grasses will grow owing to excessive moisture. If one pound or so per acre is sown in suitable situations it will spread. It is very largely grown in portions of Gippsland, where the land is swampy.

SUCKLING CLOVER.

(*Trifolium minus*)

Probably one of the commonest quick-growing annual Trefoils. It grows close to the ground, giving good bottom feed in the early spring and is valuable for land which does not naturally grow White Clover. It seems adapted to poorer soils and slightly drier climates than would suit White Clover, and its very heavy seeding habit ensures continuance once it is introduced in suitable soils.

CLUSTER CLOVER.

(*Trifolium Glomeratum*)

An annual something like Burr Clover, but thrives in rather lighter soils. It grows on hills where Burr Clover is often confined to the flats. It has no injurious burr and therefore is excellent for sheep country. It is easily introduced by scattering seed over the land when it is not too hard.



Subterranean Clover making heavy growth.

Yates' Current Price List contains Pasture Grasses, Clovers, Fodder Crops, etc.—send for one.

LOTUS (Varieties).

LOTUS CORNICULATUS (Birdsfoot Trefoil) — A perennial which will probably do well in coastal and tableland districts, where rainfall is mainly a summer one. We have recently tested this variety out in the County of Cumberland and we find it to be a drought-resistant hardy pasture plant; perennial in habit, with its main growing period in the summer time.

(A customer in North Queensland, where Clovers are hard to grow, reports great success with this Lotus.)

LOTUS MAJOR (Greater Birdsfoot Trefoil) — A perennial like the above, but appears to do best in damp soils, and grows mainly in the cooler months. Used largely in N.Z. for breaking-in newly-drained swamps.

LOTUS ANGUSTISSIMUS (Narrow-leaved Lotus) — A hardy annual clover which does well in rough country and should be very suitable for including in sowings on burns in the autumn in cool country.

BURRLESS or BUTTON TREFOIL.

(*Medicago Orbicularis*)

This is a variety of Trefoil Clover which has attracted attention in Tamworth and other northern districts. It is very similar in its growth and appearance to our Native Trefoil or Burr Clover, but the seed is not enclosed in a burr, but in a smooth pod like a small snail's shell. However, the plant is not as hardy or as prolific as the well-known Burr Clover. It is an annual, but seeds itself so profusely that it comes up every spring, and is permanent when once introduced in suitable districts.

Crop Clovers for Sowing on Well-prepared Cultivation Land.

PERENNIAL RED CLOVER YATES' N.Z. COW-GRASS—Is fully described on an earlier page. It is largely sown on cultivation land for winter and spring feed and for renovating the soil.

BERSEEM CLOVER.

(*Trifolium Alexandrinum*)

A very valuable annual cultivation clover, suited for the more temperate districts, which must be sown in early autumn as it makes its growth during the autumn, winter and early spring months. Sown in early autumn in a favourable locality it will give many cuttings of valuable lucerne-like green-stuff during the winter and early spring.

Most imported Berseem Clover seed is badly infested with Hexham Scent (*Melilotus Indica*) and as far as possible we only handle locally saved seed, but when importation is necessary all samples are submitted to the Department of Agriculture for test to make sure they are free from this troublesome weed. Sow 8-12 lbs. per acre on rich cultivated land—heavy alluvial soils are most suited. It must be re-sown as a crop each autumn.

**BOKHARA CLOVER
(or White Sweet Clover).**

(*Melilotus Alba*)

A biennial, extremely useful for renovating and green manuring. The plant makes very big root

TRIFOLIUM CERNUUM.

(Drooping Flowered or Gingin Clover)

This is an annual Clover which seeds itself down, so that once introduced it is permanent. It makes heavy growth in the autumn and winter months, and is particularly suitable for moist or even wet soils in cool climates. It will withstand a large amount of inundation during the winter months. In drier soils it is not so successful.

LESPEDEZAS.

We usually stock small quantities of both varieties as mentioned below.

It is a summer grower and where other legumes will not do it may be useful as a fodder and soil renovator.

LESPEDEZA STRIATA (Korean Clover)—A quick-growing annual form, the growth is soft and palatable. It is one of the few summer growing annual Pasture Legumes available and is well worthy of trial in the Northern districts of summer rain where ordinary clovers will not thrive.

LESPEDEZA SERICEA—Not an attractive fodder plant, being very hard and sticky. This is a perennial form of this species.

TOWNSVILLE WILD LUCERNE.

(*Stylosanthes Mucronata*)

In the drier parts of Northern Queensland this plant provides leguminous feed. It ripens off and seeds as the rainless winter months advance. We are able to offer limited quantities of freshly saved seed.

growth, and when it dies out after the second year it rots down very quickly, leaving the soil well opened up.

Bokhara can be grazed by all classes of stock, the fodder value, by analysis, being extremely high. There is practically no danger of bloat with this Clover, but it is likely to taint milk. It is an excellent honey plant.

If used as a rotation crop it can be ploughed in either the first or second year according to circumstances. The main seeding takes place the second year, and there is little danger of the plant getting out of control.

This plant should not be grown in wheat paddocks, as the seed will taint flour. Sow 8 lbs. to 10 lbs. per acre broadcast, or 5 lbs. in drills.

TRIFOLIUM INCARNATUM.

(or Crimson Clover)

An annual clover, useful as a rotation crop or for hay. It is a very quick grower and a great soil renovator. The root system is particularly efficient in producing nitrogen bacteria and therefore should be useful as a soil improver in orchards in cool highland districts. Stock do not eat it readily when green, owing to its hairiness. A splendid variety for clover hay in cold districts. Sow 10 to 12 lbs. per acre in autumn.

LUCERNE.

Some Notes on its Treatment as a Grazing Crop with Special Reference to Wheat Lands on the Slopes and in the Riverina.

ONE of the most important crops for cutting and grazing. Costs of preparing land for sowing Lucerne are fairly high. Only the cleanest seed of extra high percentage quick germination should be sown, and the strain should be most vigorous and drought-resistant. We have a name which is unsurpassed for all the above qualities, and our advice is always promptly available.

NO NECESSITY FOR HEAVY SOWINGS.

There is no advantage in sowing Lucerne more thickly than the quality of the land warrants. In the best alluvial land 10 lbs. per acre is ample and as little as 2 lbs. per acre makes a satisfactory sowing for pasture purposes where a combination of grass and lucerne is required.

SOWING THE SEED.

The seed being small, should be only lightly covered with soil (about $\frac{1}{2}$ -in.); if buried more than one inch the percentage of germination is noticeably reduced. The best quality re-machined seed only should be used, and the land should be well prepared, fallowed, and after sowing, well firmed, so that the seed will make good contact with the soil.

The usual method adopted in sowing seed on large areas is to use the wheat drill or the "combine," while on small areas a hand broadcasting machine is operated or the seed is scattered by hand.

When lucerne seed is mixed with superphosphate and sown through the fertilizer box of a grain drill, care must be taken not to sow too deeply. Often it is an advantage to pull the distributing tubes out of the "feet" of the drill, allowing the seed and fertilizer to drop on the surface of the ground. A brush harrow, such as a strip of wire netting suitably weighted, will give sufficient cover. When the soil has a loose, dry top with a firm, moist bed just underneath, it is often an advantage to sow through the "feet" of the machine just on the moist soil.

When seed and superphosphate mixed are being sown, only a small quantity of the mixture should be

put in the fertilizer box at a time, as this ensures a more even distribution of the seed over the area to be planted.

On friable, self-mulching soil, lucerne is being established satisfactorily for pasture purposes by broadcasting the seed per medium of top-dressing machines, harrows following to give effective covering, or sheep may be used to lightly tramp the seed into the ground. In some cases the land is given a shallow cultivation prior to seeding.

Autumn sowing is generally to be recommended, as the plants have a chance of becoming well established in the cool seasons, but there are many factors which have to be taken into account, such as the period of greatest weed growth, severity of winter frosts, etc., and spring sowings are therefore often very successful.

FEEDING-OFF LUCERNE STANDS.

Tests have shown that lucerne should be allowed to reach full bloom before cutting or feeding-off at least once or twice a year. Where sheep are continuously grazing on a paddock of lucerne for lengthy periods, the young shoots are severely eaten back, the crowns become damaged, and the vitality of the plant is considerably impaired. In paddocks that are grazed the surface soil sets hard with tramping and cultivation should be carried out at least twice a year.

It is advisable to have reasonably small paddocks, and put large numbers of sheep on at a time to eat the area off in at least ten or twelve days. If the paddocks are large, temporary fences that can be erected rapidly and moved easily should be utilised for sub-division purposes.



A Spring Growth of Lucerne on Wheat Country.

Yates' Current Price List contains Pasture Grasses, Clovers, Fodder Crops, etc.—send for one.

Top-dressings of 1-1½ cwt. superphosphate per acre should be made at least every second year. The fertilizer should be applied in July or August, working it in with a cultivator or heavy tripod grass harrow.

The carrying capacity of well-managed grazing areas of Lucerne is remarkable. By the judicious use of light sowings of Wimmera Rye-grass with the Lucerne, heavy winter and summer grazing is available.

CEREALS OR WIMMERA RYE-GRASS FOR WINTER FEED ON THIN LUCERNE STANDS.

Where Lucerne stands have been utilised for grazing for a number of years and are thinning out, an autumn sowing of 20 lbs. of wheat or 30 lbs. oats per acre, on easily worked land, will provide a considerable quantity of winter grazing during the cereal crop's period of growth of five or six months, or an over-sowing of 3 to 5 lbs. of Wimmera Rye-grass seed per acre may be made in the autumn. Great success has been gained by sowing from one to two pounds of Lucerne seed (taking care not to sow too deeply) with a crop of Wheat or Oats. It would be wise when doing this to reduce the amount of seed of Oats or Wheat below the usual to allow the Lucerne stands to have a better chance. This practice is most successful in districts where late spring or early summer rains may be experienced.

YATES' REMACHINED SEED GRAIN FOR GREEN FODDER, HAY, OR GRAIN

YATES' Remachined Grain is carefully freed of straws, pinched grain and weed seeds, so with the plump, even grain less need be sown and a more even strike obtained, and farmers will not be infesting their paddocks with weed seeds. Grain Crops are most important for the assurance of Green Fodder supplies for the winter pinch and for the provision of fodder storage. If one of the leguminous crops can be planted with the grain, soil fertility will be maintained and the feed value of the paddock much increased.

SEED OATS.

Prime Heavy Re-cleaned Samples.

The importance of sowing only re-cleaned and re-graded Seed Oats for green fodder as well as for grain is now beyond the experimental stage. The high cost of cultivating the land makes it more than ever necessary to get the most out of the area sown. It is better to have ten acres of a really good crop than twice the area giving only an indifferent yield.

Oats are grown very largely for winter grazing for all stock and are particularly good in this respect for the dairyman. For best results the crop should be grown in three or four small paddocks rather than one large one so that the stock can be crowded on and the crop eaten down quickly. In this way each paddock can be given reasonable time to recover and make fresh growth. Continual grazing without spelling is wasteful and not good for either the crop or the stock. We recommend that a dressing of 1 cwt. of Superphosphate or more be used. If a proportion of Field Peas, Vetches, or Red Clover, according to climate and situation, be planted with the Oats the stock will get a more balanced diet and will do better, and soil fertility will be kept up. Where Red Clover can be sown the late Spring grazing will be increased and good stubble feeding can be expected during the following Autumn.

LUCERNE IN GRASS MIXTURES.

A little Lucerne is worth including in all pasture mixtures for sowing on reasonably deep and fertile soils, whether hill or dale. The deep roots of this legume ensure green feed in summer, when most of the grasses will be dormant.

Lucerne and Wimmera Rye-grass make a splendid mixture to provide all-the-year-round grazing in dry hot climates, provided sufficient autumn and winter rains fall to start the Wimmera early and ensure growth throughout the winter and spring.

Seed Supply—For over thirty years we have been handling Lucerne seed in large quantities, and it follows naturally that we have gained a wealth of experience.

In sealed bags, is re-machined and tested seed of extra prime quality of a superior type of N.S.W. grown Lucerne, which is saved on selected farms in those districts in which, owing to special natural conditions, there has been evolved a long-standing drought-resisting strain, which has proved itself for Australian conditions. We specially treat samples of Lucerne seed containing "hard seeds," thus ensuring a very high percentage quick germination, which is important, helping the newly sown crop to overcome the weeds which so quickly come in a newly sown area. Supplied in 25 lbs. and 50 lbs. net SEALED bags.

SEED OATS (continued)—

Yates' A.Y. Re-machined Samples of Oats are the very pick of the lines available and, where necessary, varieties are specially grown on contract to ensure that the variety is true to name; generally there is quite a lot of trouble through the wrong naming of varieties and many failures in the paddock are due to this trouble. We take the greatest care in this respect, and purchases are carefully checked by growing comparative row trials in our extensive trial grounds. All samples are carefully cleaned and re-



Experimental Plots of Remachined Oats on our Trial Grounds.

Shall we send Yates' Current Price List? — free on application.



Comparative Test Rows of Grain Crops on our Trial Grounds.

SEED OATS (continued)—

graded with our own machinery so that every grain should produce a strong, well-nourished plant and less seed need be used per acre.

The choice of variety to be used is largely governed by the district, time of sowing, and the use to which the crop is being put. Those listed, in our opinion, comprise all the good varieties suitable for grazing and cropping under different circumstances.

ALGERIAN—The standard maincrop variety for grazing, hay and grain. Is very hardy, a good drought resister, and stands up exceptionally well under constant grazing. If planted early—provided it is fed down quickly and allowed to recover—it will give continuous green feed right through the late Autumn, Winter and Spring, and in many cases will give fair yields of hay or grain. In all grazing trials this variety is generally the one used for comparative tests of new sorts. If allowed to grow tall it is rather subject to rust in coastal districts. We stock two grades of this variety—Yates' A.Y. Extra Prime for those requiring the highest quality, and No. 2 Good Re-graded for those who want a good sample but at competitive rates.

BUDDAH—An early, very rust resistant sort which is becoming extremely popular on the Coast for grazing. While earlier than Algerian, it compares quite well with that variety for recovery after being fed off. Makes good hay and is proving one of the best early varieties for grain.

SUNRISE—A very early variety with coarse straw, but exceptionally palatable. A moderate stooler and very rust resistant, doing well in coastal districts. Its recovery after grazing is only fair and this variety is best suited for early feed when planted early or owing to its quick growth it is excellent for late planting.

MULGA—An early, rather finer strawed selection from Sunrise which does well on the coast and tablelands, makes only fair recovery after grazing but is excellent for hay or grain.

BELAR—A medium early variety principally used for hay and grain and will do well in districts where the season is rather too short for Algerian; does only moderately well on the coast and is not much used there, but inland it has been found to stand up to grazing very well.

WHITE TARTARIAN—A variety very popular in the colder districts, where it is largely used for Spring planting and does better under cold conditions; it is not recommended for the warmer districts. In suitable situations it is an excellent general purpose variety.

SEED OATS (continued)—

GIDGEE—A variety very like the old Guyra, which it seems to have superseded. Most suitable for the colder districts, where it is frequently used for Spring planting.

FULGHAM—A variety recently introduced from America which is showing out exceptionally well in grazing trials on the lower tablelands and western slopes. In many cases under these conditions it has outyielded Algerian, but for coastal conditions it seems very subject to rust and lodging and is not recommended.

IDEAL OR WAIKARE—Developed in western districts, this Oat is claiming attention owing to its extreme hardiness. It has proved to be a wonderful grazing Oat, and after giving a plentiful yield to grazing sheep and lambs and other stock, it can be shut up late for a good yield of hay. It also tends to come away freely the following year as a self-sown crop if lightly cultivated. It is extremely palatable and has given success on the coast.

HEAVY WHITE—A late maturing variety only suitable for late cold districts with a good rainfall.

WHEAT.

Prime, Heavily Re-cleaned Samples.
For Green Feed Growing.

Wheat is largely used for green fodder and for hay, as well as being the world's most important grain crop. It stands dry conditions better than almost any other grain, and is therefore of great value for fodder and for hay. It will often give good crops in seasons when oats are a failure. The only variety we stock in quantity is **Florence**, which is of outstanding suitability for growing in coastal districts for green feed and hay. **Florence** wheat is unique for special purposes and supplies are not plentiful.

Sow up to 2 bushels per acre, together with a dressing of 56 lbs. to 112 lbs. superphosphate per acre, according to location and quality of the land. The addition of a few pounds of Field Peas or Vetches is an advantage.

BARLEYS.

Barley is the earliest of the grain crops to mature, and in this earliness lies also its great value as a green fodder crop. It is one of the sweetest fodders grown, and is relished by all classes of stock. Sow about two bushels per acre.



Feeding Off Green Oats.

YATES' REMACHINED SEED GRAIN (continued)

LEY (continued)—

WHITE SKINLESS—The earliest variety, and very valuable for its quick growth. It affords two cuttings, and should be grazed after each; the close feeding seems to cause it to come away with renewed vigour.

CAPE—This is the variety most generally used for green fodder. It grows quickly, stools very well, and gives large bulk of feed; a five-row bearded type.

ENGLISH—Mostly used for grain for malting.

RYE CORN.

Rye Corn is very hardy and most suitable for poor soils, and is largely used for winter feed, especially where the climate is severe, as it grows better in very cold weather than any other cereal. It is excellent for grazing. Stock do best while the Rye Corn is young, so it should be kept well fed down.

It will stand grazing all the winter, and rapidly grows again after being eaten down. It is also used for mixing with Tares, the Rye Corn serving to hold

RYE CORN (continued)—

the Tares off the ground. Rye Corn comes into use very early. Does well on sour land even in warm climates. It is also sown to advantage mixed with Rape. The straw is very valuable for thatching, and some farmers sow the headlands of their hay paddocks with Rye Corn for thatching the stacks. Sow about two bushels to the acre.

BLACK WINTER RYE—The best sort for early winter feed, strongly recommended for all grazing and stock feeding purposes.

LEGUMINOUS CROPS ARE TO GRAIN AS CLOVER TO GRASS. As good pasture must contain clover, so should all green crops contain some leguminous constituent. Thus a balanced diet is arranged, and instead of increasing problems of worn-out cultivation we shall find land continually improving in fertility. One of the biggest problems of the orchardist is loss of humus with consequent depletion of soil fertility and even soil erosion; leguminous cover crops are the remedy.

LEGUMES FOR FODDER CROPS OR GREEN MANURING

UNDER the term Legumes are included all clovers, lucerne, etc., and the list of varieties listed hereunder, which are grown alone or in association with cereals (wheat, barley, oats, rye, corn, etc.), for fodder purposes or for cover crops to be ploughed under as Green Manuring. The different varieties vary considerably in adaptability to different soils and climates. If you are in doubt which are best for your purposes write to Yates! You must have the seed clean and of strong germination, and you must have the right variety and strain. Yates' lines are all carefully selected and thoroughly cleaned and tested.

FIELD PEAS.

Field Peas are a very easily grown crop on fair class cultivation soils in temperate climates—loams and clay loams of an open nature are best. They are best sown in the autumn or early spring.

Peas are very quick growers, and give a good bulk for fodder or for green manuring. When grown for fodder they are best used in conjunction with a cereal, such as wheat, oats, or barley—say $1\frac{1}{2}$ bus. of the cereal to $\frac{1}{2}$ bus. of Field Peas. Stock do sometimes avoid Peas when they are green until they get used to them, but they always eat them readily when well wilted or made into hay.

Field Peas are very largely grown for green manuring, and may be sown in drills or broadcasted at from $1\frac{1}{2}$ bus. to 2 bus. per acre. If they are sown early they make wonderful growth throughout the winter, and may be ploughed under in the spring, just as the pods are setting. Frost in the winter will kill the flower and pods but will not prevent the vines growing.

Peas are among the best of the soil improvers; even if the roots only are ploughed under the soil is greatly enriched. A favourite method of growing Field Peas for fodder and soil enriching on coastal farms is to sow the Field Peas between the rows of late maize just prior to the last cultivation. When the maize ripens the drying leaves allow ingress of light and air, and rapid growth is made. After feeding off, the roots and top growth which has been trodden down are ploughed, and help to maintain the soil fertility for the following maize crop.

Field Peas, though not so hardy as Tares or Vetches, are earlier maturing, usually cheaper in price, and one grower reports that when grown with a cereal it

FIELD PEAS (continued)—

will stand the trampling of grazing cattle better than will Golden Tares under similar conditions. Field Peas can be sown in the autumn or spring, but in mild districts we prefer autumn sowing.

Sown alone $1\frac{1}{2}$ to 2 bushels per acre broadcast, or, say, 1 bushel in drills 2 feet apart. Sown with cereal crop, try $\frac{1}{2}$ bushel Field Peas with $1\frac{1}{2}$ bushels oats or wheat per acre.

Care should be taken to sow the seed deeply enough (2-3 inches in normal soils). Superphosphate should be applied to ensure heavy yields.

GREY OR PARTRIDGE FIELD PEAS—This produces probably the heaviest amount of green stuff of all the Field Peas, and is exceptionally hardy. For green manuring or for fodder purposes in most districts, it is the variety to use.



Purple Vetch (*Vicia Atropurpurea*), the Great Soil Renovator.

Shall we send Yates' Current Price List? — free on application.

FIELD PEAS (continued)—

DUN FIELD PEAS—This is slightly earlier maturing than the Grey, and where Peas are grown for the grain as a rotation in wheat farming, this variety will probably be most suitable. It will ripen its seed under warmer and shorter seasoned conditions than the Grey, and is a very heavy yielder.

BLACK EYE SUSAN FIELD PEAS—This is a remarkably quick maturing variety, and for sowing very late, or where an extra quick crop is required, it is well worth using. Its main purpose is for green manuring or fodder.

BLUE FIELD PEAS—This Pea is grown in very cold districts only, mainly for the grain, which is sold on the produce market as “boilers.”

TARES and VETCHES.

Used for winter green feed and spring hay in combination with Oats or Rye Corn. They are much hardier than Field Peas as regards severe winters and poor soils, but do not make so much bulk. The **Golden Tare** is the variety which has been mostly used. The **Purple Vetch** (*Vicia atropurpurea*) has been coming well into favour in recent years. This variety is really outstanding. It may be grazed or cut again and again with the other winter green feed with which it is sown, and recovers well. Of a trailing habit and vigorous growth, quite a light seeding of this Vetch will give good results. The seeds are much smaller than the Golden Tare, and will therefore sow more land weight for weight. A most valuable sort for green manuring.

Vetches are wonderful soil improvers. We strongly recommend a trial of the Purple Vetches for providing well-balanced green fodder with Oats, Rye Corn, Barley, etc., etc., or for green manuring. Sown alone, use about 30 lbs. per acre or about 15 lbs. with $1\frac{1}{2}$ bushels to 2 bushels per acre of other grain. Superphosphate should always be added if there is any lack of fertility in the land. If using the Golden Tare, about 30 lbs. with a bushel of grain or up to 2 bushels sown alone should suffice.

HORSE or TICK BEANS.

A variety of Broad Beans, the seeds of which form excellent feed for horses; but their main usefulness is as a winter green-manuring crop. Sow about 2 bushels per acre if broadcasting, or, say, 1 bushel in drills. Our lines are all heavily machine dressed and tested, and less need be sown per acre compared to inferior samples.

SUMMER GROWING LEGUMES.

Such as Cow Peas, Soy Beans, Velvet Beans, etc., are listed in our Spring Farm List, available later.

NEW ZEALAND BLUE LUPINS.

Annuals which for green manuring provide one of the best crops for ploughing in, especially in our cooler districts. They are not suitable for green feed for animals. When practicable we recommend autumn sowing, but they will succeed if sown in early spring. Lupins grow very rapidly and produce a quantity of top. Sow at the rate of 2 bushels per acre. For small trials 3 lbs. will sow an area of 100 square yards (10 yds. x 10 yds.) Supplies are scarce.



Trial Plot of Dwarf Essex Sowing Rape.

SOWING RAPE.**YATES' "A.Y." BROAD-LEAVED DWARF ESSEX.**

Sowing Rape is one of the most profitable stock fodders for fattening. In addition, it is a very useful rotation crop and soil renovator on account of its vigorous deep rooting habit, which penetrates subsoils to a considerable depth. It is one of the best annual fodder plants for sheep in the better rainfall parts of Australia, and with the widespread recognition of the value of combining sheep and wheat, it is now becoming very important on the wheat farm, not only for sheep feed, but also as a rotation crop for renovating wheat land. The roots of the Rape tend to break up an enliven the soil just below plough depth, and this greatly renovates the paddock. Rape is equally good for sheep, pigs or cattle, so long as it is not given in quantity to milking cows, as it is apt to taint the milk.

Sheep put on to Rape fatten very quickly; even old, broken-mouthed ewes that would starve on an ordinary pasture very soon put on flesh and are fit for the butcher. They should, however, be sent to market as soon as they are “topped off,” as, if put back on the grass, they very soon lose condition again. As a means of fattening lambs, especially weaners, for market, there is nothing to equal Rape.

Rape should be eaten off heavily and “spelled”; the plants then soon recover and give a second or third crop almost as good as the first; in fact, if sown in the early autumn it should give several months’ feed.

Poultry farmers are finding a small patch of Rape a valuable asset, and for this purpose small successional sowings should be made through the autumn and again in the spring.

Some growers prefer to sow it with Rye Corn, say, half bushel of Rye and 2 lbs. of Rape; others sow it with mustard, using $\frac{1}{2}$ lb. with 4 lbs. of Rape per acre. The inclusion of mustard corrects the occasional tendency of Rape to scour. Italian Rye Grass, about 6 lbs. per acre, does exceptionally well with Rape.

We recommend sowing in February, March or April, after the good autumn rains, but as early as possible after the middle of February. It can also be sown with advantage in early spring, especially in the cooler districts, as it is extremely hardy. Work the land well and fine the surface. Sow seeds at from 3-6 lbs. per acre. A good method is to mix with fertiliser and sow through manure box of drill. Care should be taken to sow the seed very shallow.

Yates' Current Price List contains Pasture Grasses, Clovers, Fodder Crops, etc.—Send for one.

SUNDRY FODDER CROPS.

FOR AUTUMN PLANTING.

CABBAGE, CATTLE—In cool climates the very large late varieties have a value as cattle feed. Sow in late summer and autumn in seed bed, and afterwards transplant. Sow about $\frac{1}{2}$ lb. for each acre to be planted out.

CHOU MOELLIER or MARROW KALE—Variety of Kale. Of extremely vigorous growth and yields enormously. The leaves should be cut, not pulled off the stem, and fresh growths are then formed immediately. Sow in early autumn, 2 lbs. to the acre, if drilled, or 1 lb. is sufficient if transplanted; the drills should be two feet apart, allowing 12 to 14 inches between the plants. Trial packets, 6d.

THOUSAND-HEADED KALE—Few plants will give so great a quantity of feed per acre as Thousand-Headed Kale, and all animals eat it greedily. These should all be sown in a seed bed, and afterwards transplanted 2½ feet between the plants and 3 feet between the rows. For the best results sow in summer or early autumn. Trial packets, 6d.

MUSTARD—For a quick green fodder and corrective for fattening lambs, Mustard can be recommended. It is usually used mixed with Rape. It is ready a few weeks after sowing, and is often used as a quick green cover crop.

SWEDE TURNIPS—Swedes can be grown cheaply and with comparative ease on much of the upland country of N.S.W., not only for stock, but for the vegetable market. For sheep, they make an excellent fodder, especially as they become available during the winter and early spring, when most needed. Sowing should be made in February, March and April at the rate of approximately 1 lb. per acre in drills about 2 ft. 6 in. apart. Thin out when the plants are large enough and cultivate. Great success has also attended broadcast sowings of this crop at the rate of about 1 to 3 lbs. per acre, mixed with sand or fertiliser, to ensure even sowing. The best roots may be pulled for market and the balance grazed with sheep or cattle. This is the cheapest method of growing Swedes, as there is no thinning out or weeding to do. A bag of superphosphate per acre will cause considerable increase in weight and vigour of crop.

Yates' Champion Purple Top—A standard globe-shaped variety, which gives wonderful returns and is the standard sort for growing for market. Our strains are unexcelled, the crop comes in evenly and the Swedes are well shaped, large, and keep well. Also excellent for stock feed.

Yates' Monarch—A large tankard-shaped variety with purple top. Heavy yielder and good keeper. Excellent for stock or market growing.

FIELD TURNIPS—Valuable for providing stock feed in the winter and early spring months. They are quick growers, especially the white-fleshed sorts. They can be planted when it is too late to sow Swedes, and will yield heavy crops. Sow about 1 lb. per acre in drills, or broadcast as suggested for Swedes. We stock the leading varieties, both white and yellow fleshed.

MANGOLDS AND SUGAR BEET—Wonderful milk producers, and yield immense crops. In cool climates sow about September-October; in warm climates an

autumn sowing will give a fine winter crop. Plant in well-worked, clean land, in drills 30 inches apart, to allow horse cultivator to work, and when up hoe to remove any growth of weeds, and, if necessary, thin out to allow the roots to develop. Five pounds per acre of Mangolds and about 8 lbs. of Sugar Beet are fair sowings. The best varieties are:—

Yates' Mammoth Long Red.

Yates' Champion Yellow Globe.

Sugar Beet Wanzleben.

Giant Half-Sugar Mangold.

SALT BUSH—In the drier climates the Salt Bushes make excellent feed. They give good feeding during the summer months. The creeping variety (*Semibacata*) is coming into some prominence for sowing with *Phalaris tuberosa* in districts of good winter rainfall but very dry summers. Bladder Salt Bush (*Vesicaria*) is also valuable for pastures. Old Man Saltbush, if sown in selected areas, makes a good drought reserve. They are easily raised from seed or cuttings. One pound should seed an acre. The seed appears to sprout best when sown in winter while the ground is cool and moist.

KURRAJONG (*Sterculia Diversifolia*)—Many stock owners have to fall back on edible scrub for the stock during drought, and the foliage of this tree has considerable value, as well as being very ornamental and enhancing the value of property.

TAGOSASTE (so-called Tree Lucerne)—Suitable for hedges or breakwind and a stand-by against droughts.

MEDICAGO ARBOREA (the real Tree Lucerne)—A yellow-flowered ornamental shrub with dense soft foliage, closely resembling lucerne. Grows 6-8 feet high, and is useful for fodder.



Champion Purple-top Swede for Winter Feed.

Yates' Current Price List contains Pasture Grasses, Clovers, Fodder Crops, etc.—send for one.

A Profitable Side Line!

MARKET GARDEN CROPS

IN districts within reasonable distance of the centres of population and with a fair average rainfall, it is often well worth while for the farmer to reserve some of his best land for vegetable production for market.

The essentials for successful market gardening are good soil, good rainfall or facilities for irrigation, rotation of crops, intelligent use of fertilisers, and regular cultivation, and, above all, the use of the most suitable strains for local conditions.

Few autumn-sown crops average out as well as Cauliflower, Cabbage, Pea, Bean, Swede, etc., if grown under suitable conditions, while for summer growing we have special strains of Beans and also Melons, Pumpkins and all such vine crops. It is wise first to decide what crops are best suited for your conditions, and then to grow them consistently on a well-planned rotation. In this way you will obtain better returns than the grower who is constantly changing over and thereby often meeting a "glut" of the particular line he is growing.

The higher returns regularly obtained by experienced men are evidence that skill and care are very necessary in this branch of farming. Where conditions of soil and season are not favourable, and where varieties have been sown unsuitable to the time of planting or the district, the crop is likely to vary considerably in type, season of maturity, and uniformity. Our advice is to grow those varieties which local experience has proved suitable, and then conduct your own experiments as to the suitability of later introductions and improved sorts.

We specialise in Market Garden Seeds of all types. Each established and introduced strain is carefully tested in our trial grounds, and consequently, knowing the habits and characteristics of each strain, we can advise as to their worth and suitability. Write to us about them!

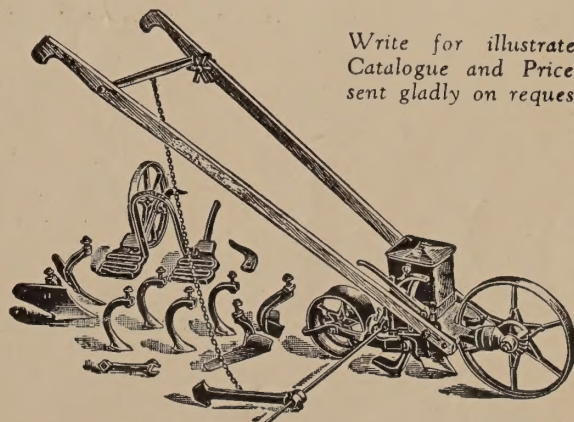
Valuable information regarding the best varieties, time to plant, and cultural directions, is given in Yates' Annual and Yates' Garden Guide (1/- post free). Prices are all set out in Yates' Current Price List, published monthly.

FARM IMPLEMENTS



The "Mintern" Broadcast Seed Sower is a splendid machine for broadcast sowing of Clover, Sudan Grass, Millet, Lucerne, Pasture Grass, and small grain. Weight, when packed, 15 lbs. Price, 37/6 (Freight extra).

HILL AND DRILL SEEDERS SINGLE WHEEL HOES DOUBLE WHEEL HOES HAND PLOWS

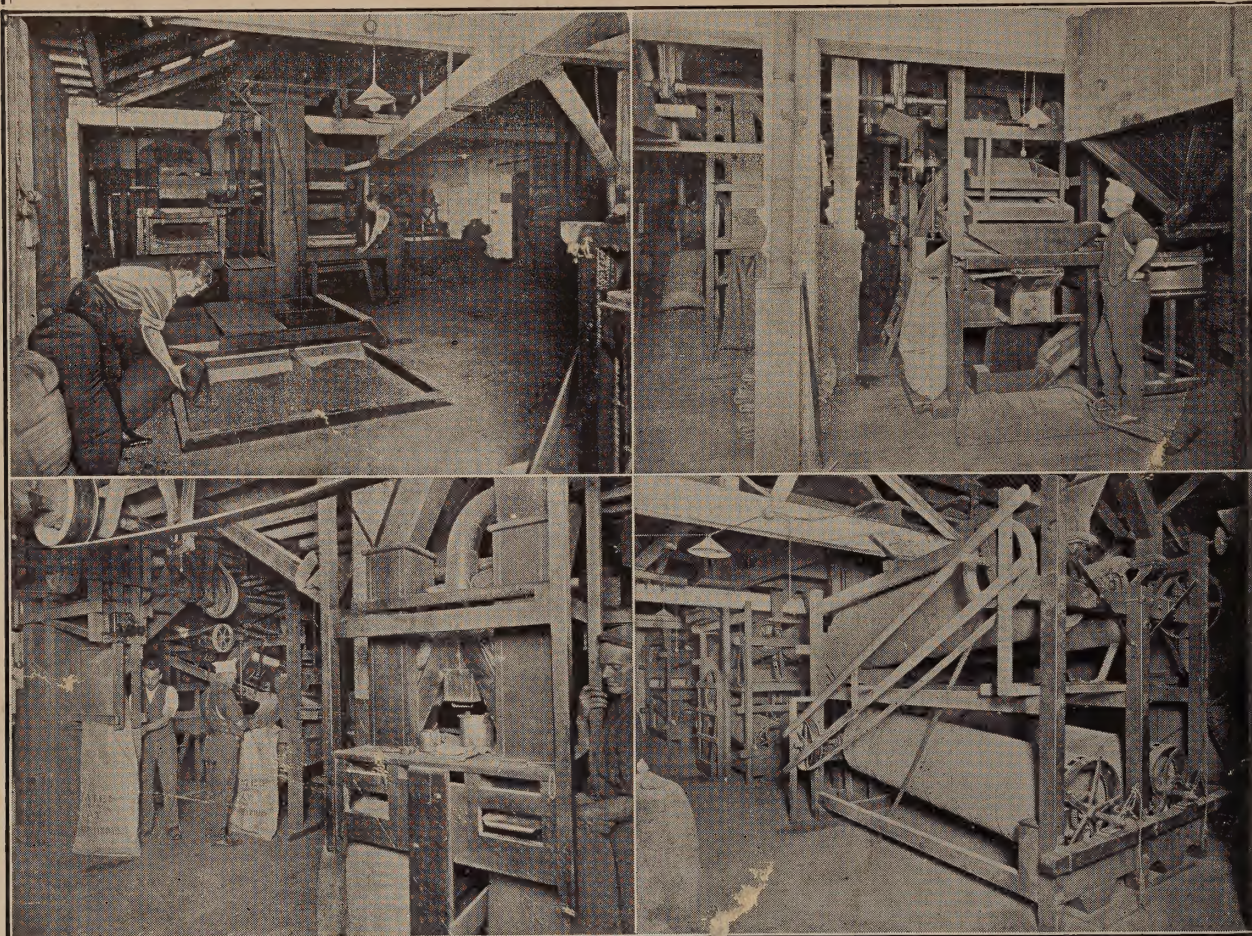


Write for illustrated Catalogue and Prices, sent gladly on request.

No. 25.—"Mintern" Combined Hill and Drill Seeder, Double and Single Wheel Hoe, Cultivator and Plow. This implement will sow almost all varieties of Vegetable Seeds, besides being a most valuable tool.

Price, £5/17/6 (Freight extra).

THE PRACTICAL ORGANISATION BEHIND THE WORDS "RE-MACHINED AND TESTED"



We have built up in our own Warehouse what is undoubtedly the largest and most complete plant in Australia for the cleaning and dressing of Seeds ; much of this is of our own design, and therefore particularly suited to our purposes. The proportion of Farmers who realise the folly of sowing unmachined farm seeds is now very high and is ever-increasing, and in consequence of this we are continually adding to and improving our plant to cope with the demand.

With the installation of latest machinery working in conjunction with our own improved mechanical devices, it is now possible to thoroughly eliminate all weed seeds and foreign matter from samples. We have at present nine complete series of machines, all electrically driven and systematically worked, and occupying a floor space of approximately 6000 sq. ft. The combined equipment has a capacity of 20 to 25 tons of cleaned seed per day, and for the greater part of the year the whole plant is working at full pressure.

Many principles are employed in modern seed cleaning, each being as important as the other : Revolving Cylinders, Wind Blast, Surface Attraction (e.g., Velvet Rollers), Brushing, Gravity, and Sieving.

Each of these methods serves a particular purpose, but it is the continuation and the co-relation of two or more that means Yates' Re-machined Seed, and it is here that skill and long experience count.

The Laboratory containing five Incubators, electrically controlled, together with other necessary equipment for Seed Testing, is the most up-to-date of its kind in the Southern Hemisphere—extremely accurate results are obtained.

All this organisation and our long experience is at your service for a small extra charge over what must be paid for rough dressed Seeds.

Is it not worth it ?